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ABSTRACT

This report presents a final assessment of the early implementation of the School-to-Work (STW)/Youth Apprenticeship Demonstration programs and participants. Chapter I describes the evolution of STW policy. Chapter II discusses marketing methods, the student selection process and selection criteria, reasons for student participation, and number and characteristics of participants. Chapter III discusses how programs organized the school setting to facilitate student learning and describes ways in which sites arranged curricula. Chapter IV examines these topics: challenges of employer recruitment; student placement; types and scope of workplace activities; and work-site staff members' roles. Chapter V describes how employers and school staff communicated and integration strategies pursued. Chapter VI discusses job placement assistance, education and training linkages, and actual postsecondary transitions. Chapter VII discusses counseling on career issues, academic achievement, and personal problems. Chapter VIII examines the types of partners and resources that the demonstration programs mobilized. Each chapter ends with a summary of issues that affect that specific component. Chapter IX presents a summary of the major findings and recommendations for policies and strategies that may facilitate the development of future STW initiatives. Appendixes contain 17 references, description of demonstration site programs, and student data forms. (YLB)

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Experiences and Lessons of the School-to-Work Youth Apprenticeship Demonstration

Research and Evaluation Report Series 97-I

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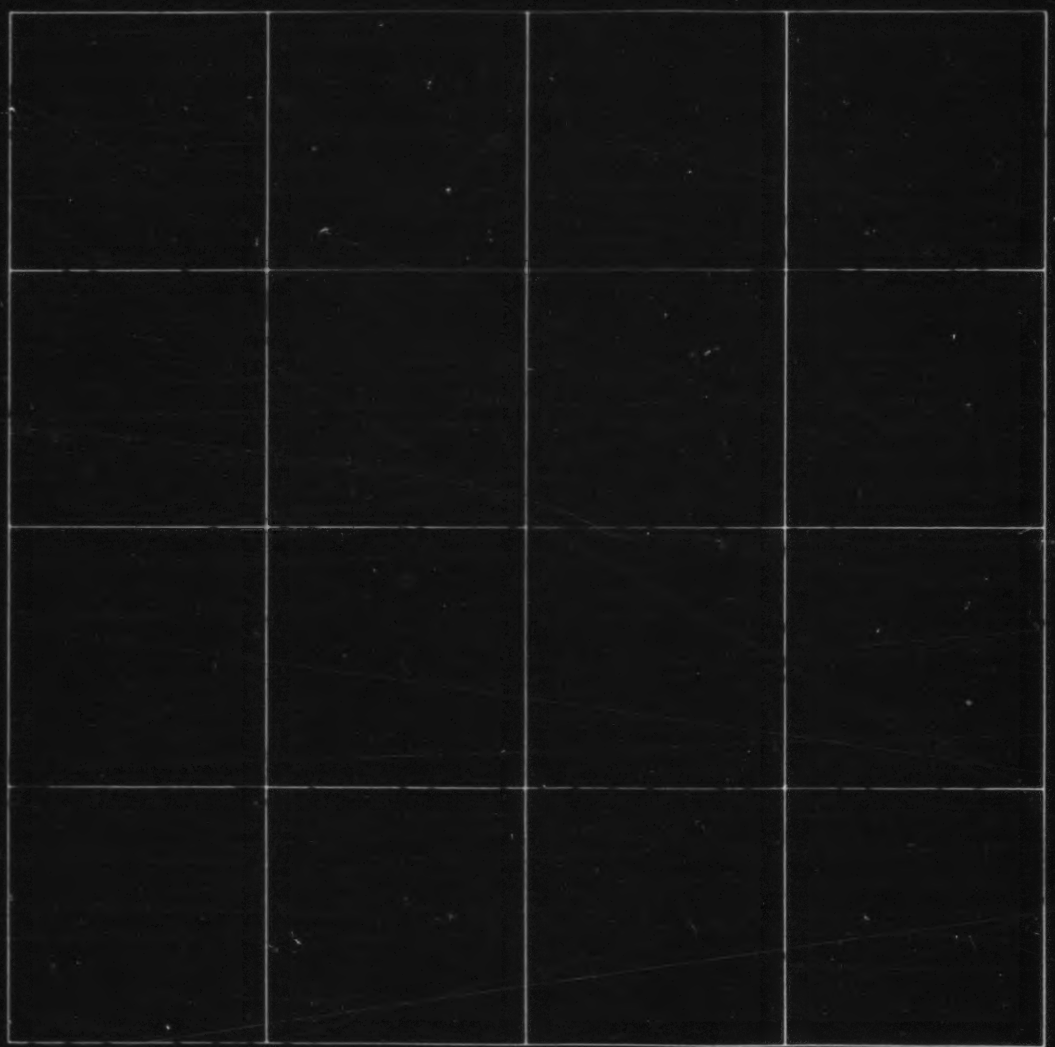
Employment and Training Administration

1997



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Experiences and Lessons of the School-to-Work/Youth Apprenticeship Demonstration

Research and Evaluation Report Series 97-E

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1997

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I. INTRODUCTION

Over the past decade, global competition and calls for upgrading the American workforce have generated greater public interest in the preparation of American youths for employment. Some evidence suggests that the American educational system is failing to equip students with the skills necessary to enter the labor market, either directly after high school or after postsecondary education or training. Educators, policymakers, and the business community have become increasingly concerned about improving the relevance and quality of students' learning experiences, and finding effective ways to facilitate their transitions from school to productive career-oriented employment.

To promote and evaluate initiatives designed to address this concern, the U.S. Department of Labor (DOL) sponsored the School-to-Work (STW)/Youth Apprenticeship Demonstration. The demonstration began in September 1990 with grants to six organizations to develop and implement a wide array of school-to-work programs involving collaboration between schools and employers and efforts to integrate school- and work-based learning. In fall 1992, DOL extended funding for a year to 5 of the initial grantees and made new, two-year grants to 10 additional organizations to demonstrate a specific model for school-to-work transition: youth apprenticeship. The programs that these grants supported were expected to promote high school completion, acquisition of skills relevant to employers' needs, transitions from school to career-oriented employment, and (in some cases) further education. Most of the programs are continuing in some capacity beyond the DOL grant funding period, and their program designs and approaches are still evolving.

This report presents a final assessment of the early implementation experiences of the demonstration programs and the students who participate in them. The findings and recommendations contained in this report are the culmination of more than four years of program observation and data collection conducted by Mathematica Policy Research, Inc. (MPR), which began an evaluation of the demonstration for DOL

in June 1991. During this period, as evidence on barriers and promising practices emerged from this and other research efforts and as federal priorities shifted, the policy context for and expectations of school-to-work initiatives evolved.

The model the demonstration programs were encouraged to adopt differs in important ways from the broad school-to-work initiatives promoted by the STWOA. Some of the demonstration goals, such as integrating academic and vocational education and linking work-site activities with school-based learning, were consistent with those of the new federal initiative. However, the STWOA imposed several major changes that distinguish the two efforts. Some key features of the STWOA that were not part of the demonstration guidelines are: (1) a provision to include all students in school-to-work experiences, (2) an emphasis on postsecondary education in school-to-work systems, (3) a shift away from occupation-specific training to a focus on preparation within broad career cluster categories as part of career majors, and (4) promotion of school-to-work as a strategy for broad educational and workforce development reform. Because of these differences, this report draws some lessons from the demonstration experience for future development of school-to-work systems, but does not strictly evaluate the demonstration programs according to the components of the STWOA.

In this chapter, we describe the evolution of school-to-work policy, including the DOL demonstration and its evaluation. In Section A, we discuss the failure of the U.S. education system to systematically encourage effective school-to-work transitions for American youth and the federal role in promoting initiatives to address this problem. We then describe the specific objectives and requirements of the DOL demonstration and the program designs of the demonstration grantees (Section B). In Section C, we outline the components of the evaluation, including the types of data collected. Finally, we provide an overview of this report (Section D).

A. THE NEED FOR REFORM AND THE FEDERAL ROLE IN PROMOTING IT

Increasing evidence on the skills and employment of young people, particularly those who do not attend college, suggests that many are ill-prepared to enter the world of work. Whether they enter the labor force immediately after high school or after postsecondary education or training, many students lack the career direction and preparation to help them choose and progress in productive jobs. As the technical, math, language, and reasoning skills demanded of even entry-level workers increase to keep pace with technological change and competition from other countries, the gap between employers' requirements for skilled workers and the skills that youths bring to the labor market has been widening. Several approaches have been designed to narrow this gap by tying students' educational experience with the world of work. The federal government has taken a key role in the support of these school-to-work programs.

1. School-to-Work Transition: The Problem

Each year half of America's youths leave high school and forgo postsecondary education to enter the world of employment, but many have great difficulty finding stable work with opportunities for growth in skills and income.[1] A typical first job for these youths is almost always in the secondary labor market and differs little from jobs they held while still in school. These positions usually require few skills and offer low pay, few or no fringe benefits, little training, slim opportunity for advancement, and little contact with older workers. Most evidence indicates that these youths go through a string of part-time and low-paying jobs in the first three to five years after leaving school and experience frequent unemployment. New research suggests that this labor market "churning" among youths may not be as severe as had been determined earlier (Klerman 1995).

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[1]Evidence of youths' difficulties in entering the job market is drawn largely from three sources: W.T. Grant Foundation (1988), ETS Policy Information Center (1990), and National Alliance of Business (1988).

The problems non-college-bound youths face as they enter the labor market are rooted in changes in the U.S. and global economies, technology, and demographic trends. The availability of stable, high-wage employment for high school graduates in manufacturing, communications, transportation, and utilities has declined steadily. Manufacturing jobs and other traditional sources of high-wage employment for youths with only a high school education have dwindled as part of a broader technological transformation of the U.S. and world economies, described by some as an "information revolution" fueled by increasing use of computers, automation, and telecommunication. This transformation has boosted skill requirements for new jobs, placing a premium on workers with a range of competencies and skills and the ability to reason, make decisions, and learn quickly.

Demographic and educational trends in the United States have exacerbated the gap between workplace demands and the skills youths bring to the labor market. An increasing proportion of new entrants to the U.S. labor force are recent immigrants--many of whom lack basic education and proficiency in English--and minorities historically disadvantaged by poverty, inadequate schools, and families marked by poor education and skills. The upward trend in high school completion rates since World War II has leveled off; dropout rates remain particularly high among minority populations. At the same time, the economic penalty for not completing high school--reduced employment and earnings--is becoming larger as changes in the economy make basic academic skills more critical.

Many critics fault the U.S. educational system for failing to develop programs that help youths acquire needed skills. In part, critics argue, America's emphasis on college preparation has isolated academic from vocational education and weakened schools' ability to prepare youths for the demands of employment. Teachers of academic courses rarely help students understand why the symbolic ideas and mathematical abstractions they are being taught are important or relevant to work they might do in the future (Gardner et al. 1982). Because many youths learn best through hands-on experience, the separation between academic and vocational high school programs aggravates the difficulties youths have in acquiring

important basic skills. Many youths, particularly those confronted with depressed local job markets and evidence that high school completion does not lead to rewarding employment, view the link between academics and successful employment as tenuous.

Vocational education, although traditionally more focused than college preparatory curricula on practical skills, has also fallen short of meeting the changing demands of the labor market. Whether measured by earnings, job placements, or employment success, secondary vocational education does not meet the needs of students or employers (Committee for Economic Development 1985). According to one study, fewer than 3 of every 10 graduates of vocational educational programs find jobs that require skills they learned in school (Lerman and Pouncy 1990). Vocational education also varies in quality and design. A recent study indicates that secondary vocational training pays off if students make informed choices among training options, training occurs in a field with strong demand, employers participate in providing training, and vocational instructors are directly involved in job placement (Bishop 1989).

Dissatisfaction with secondary vocational education programs stems in part from the fact that many have *not* provided training in up-to-date, high-demand skills. Vocational courses often are characterized by outdated skills training and minimal academic content. Some vocational schools have become a "dumping ground" for low-ability students and for teachers with the lowest status. Vocational programs' contribution to students' employment prospects is weakened by the problems these programs have equipping students with relevant practical skills and providing them with basic reading, math, and reasoning skills that are increasingly important in employment.

The separation of academic and vocational education and the lack of connection between school and work also affect students who intend to pursue postsecondary education. If youths learn best through hands-on experience and instruction inspired by a meaningful context for the material, then the traditional, strictly academic, college preparatory curriculum may not best serve even these students. Moreover, many of these college-bound students enter postsecondary education or training with little sense of career

direction. For example, baccalaureate students are increasingly taking five instead of four years to complete their studies, due to prolonged searches for a "major" and the time it takes to fulfill requirements for the major.

2. Past and Current Strategies to Encourage School-to-Work Transitions

The STW/Youth Apprenticeship Demonstration grew out of a variety of strategies for addressing the problems described here. Previous efforts have emphasized different aspects of the transition problem: the need to motivate students to complete high school and adapt to the demands and habits of work; the importance of strengthening basic academic skills by teaching these skills with a hands-on, contextual learning approach; and the urgency of helping students identify a tentative career direction. These efforts include four strategies: (1) cooperative education; (2) youth academies; (3) school-to-apprenticeship programs; and (4) Tech-Prep programs.

The earliest attempt to overcome the isolation of school-based education from the educational requirements of work was the ***cooperative education*** model, first adopted in Dayton, Ohio, in 1913. Cooperative education expanded gradually for several decades and then gained greater prominence as a result of the Vocational Education Act of 1963 and its 1968 amendments, which first allowed, and then earmarked, use of federal funds to support cooperative education. Cooperative education programs give high school students work experience through short-term placements with employers that offer on-the-job training. Cooperative education has several shortcomings. A major weakness is that students often develop specialized skills needed by one employer but fail to learn more generalizable skills (W.T. Grant Foundation 1988). Some cooperative education programs place students in low-skilled, unstructured work situations that do not promote skill development. In addition, cooperative education programs have come up lacking because they have little effect on classroom curricula and have failed to close the gap between the academic world and the world of work. Cooperative education has served fewer than 10 percent of

all students in secondary vocational tracks. Currently, close to 450,000 students participate in these programs nationwide.

Youth academies attempt to combine work and classroom learning and to break down the wall between them. High school youth academies are collaborations among school districts, local business and industry, and an intermediary community organization. The first academies were developed in Philadelphia in 1961, and programs there now focus on six occupational fields: (1) automotive trades; (2) business; (3) electricity; (4) environmental technology; (5) health services; and (6) horticulture. With the support of the Clark Foundation, four additional academies were established in the early 1980s in Pittsburgh. A review of academies found a total of 18 in Portland, Oregon, and California (Archer and Montesano 1990).

Nationwide, academies have been created in about 100 localities, usually as "schools within schools" serving students at high risk of dropping out. Youth academies most frequently target students in grades 10 to 12 who are judged by counselors and teachers as high risk. Students in each grade take most or all of their courses together, including core academic subjects and a practical lab in the technology relevant to the occupational focus. Local employers help design the technical part of their curriculum and donate necessary equipment, provide volunteer mentors, and give students paid summer jobs between grades 11 and 12.

School-to-apprenticeship programs provide an alternative approach; youths are drawn into existing registered apprenticeship programs while they are completing high school. These efforts have built on the experience of well-established apprenticeship programs in Western Europe, as described by Nothdurft and Jobs for the Future (1990). Adult apprenticeship programs in the United States exist for relatively few occupations, mostly in the building trades. They have traditionally been union controlled and available mostly to applicants in their mid-twenties. In the late 1970s, DOL funded eight projects to test the feasibility of starting registered apprenticeships for high school students. Although this effort indicated that such apprenticeships are feasible, these programs have so far remained a very small component of

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American efforts to promote school-to-work transition, serving only about 1,500 students per year (U.S. Department of Labor 1989).

The ***Tech-Prep*** approach, also known as the "2 + 2" model, is a transition model that has recently emerged. It involves giving students a broad foundation of applied academics and occupational preparation in the last two years of high school, followed by two years of more advanced academic and technical training at the postsecondary level. This approach commonly spans two years of high school and two years of community college, but variants have included "4 + 2" (built around all four high school years and community college) and "2 + 2 + 2" (in which students can obtain further education by transferring from a two-year community college into the last two years of a four-year college).

The Tech-Prep model has grown in popularity. As of June 1990, 122 consortia operated Tech-Prep programs in 33 states (Layton and Bragg 1992). By school year 1992-1993, the number of Tech-Prep consortia had grown to about 800, distributed across all states in the country and serving more than 170,000 students (Silverberg and Hershey 1995). Congress also recognized the potential merit of the 2 + 2 model, reauthorizing the Carl Perkins Act in 1990 to provide $63 million for Tech-Prep programs in fiscal year 1991 and funding the development of Tech-Prep each subsequent year (with grants for fiscal year 1995 totaling more than $107 million).

3. Youth Apprenticeship

Educators and policymakers have become increasingly interested in youth apprenticeship as a way to promote school-to-work transitions. This approach, modeled on European youth apprenticeship systems, builds on the four strategies described earlier but puts a strong emphasis on linking school-based and work-based learning. Like cooperative education, youth apprenticeship provides work experience for high school students; youth apprenticeship, however, closely connects the work experience to school instruction. In comparison with youth academies, youth apprenticeship programs place greater emphasis on job experience and on acquiring occupational skills in the workplace. While the occupational focus of

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youth apprenticeship programs may be on fields in which traditional registered apprenticeships operate, programs are not necessarily limited to these occupations. Like the Tech-Prep model, some youth apprenticeship programs include postsecondary education. Others do not, particularly if an occupation does not require postsecondary education. Youth apprenticeship programs extend beyond the traditional Tech-Prep model by including a work-site component.

At a general level, youth apprenticeship programs are designed to include:

- Active participation of employers
- Both school-based and work-based learning, and activities that reinforce and link the two
- Academic and technical skill instruction integrated by context and methodology
- Connections between secondary and postsecondary education and training opportunities
- Occupational skill certificates awarded to students for demonstrated mastery of relevant competencies

Programs adopting this comprehensive model began to emerge most clearly in the 1980s, with support from foundations and government agencies. As of 1990, federal officials estimated that only about 3,500 students were participating in such programs; however, interest in this school-to-work approach has grown since then. A number of states have enacted legislation to facilitate the development of youth apprenticeship programs, usually as part of a broader education and workforce development plan. The STW/Youth Apprenticeship Demonstration initiated by DOL was another effort to stimulate the implementation of these programs. The STWOA, which provides funding for the development of school-to-work systems, encourages communities to build from youth apprenticeship and other initiatives and promotes the inclusion of many elements exemplified by youth apprenticeship.

4. New Federal Support: The STWOA

Both DOL and the U.S. Department of Education (ED) have actively worked to identify strategies that can positively influence the school-to-work transitions of the broadest number of students. Federal

support and interest in school-to-work culminated in the bipartisan passage of the STWOA, which was signed by President Clinton in May 1994. The act provided for joint administration of the new federal initiative by ED and DOL. To coordinate administration more effectively, ED and DOL established the national School-to-Work Office, staffed by personnel from both agencies. Under the STWOA, states are encouraged to apply to the School-to-Work Office for development and implementation grants to assist them in planning and establishing statewide school-to-work systems. The STWOA also provides funding for implementation grants made directly to local partnerships that are prepared to develop school-to-work systems within their communities. In summer 1994, implementation grants were awarded to eight "leading-edge" states and 36 local partnerships. An additional 19 states and 44 partnerships were awarded implementation grants in late 1995 and early 1996.

The STWOA's primary objective is to provide initial support--"seed money" or "venture capital"--for states and localities to build school-to-work systems. Unlike previous school-to-work strategies (including youth apprenticeship) that often targeted particular groups of students school-to-work systems are intended to serve all students. This includes college-bound and non-college-bound students and encompasses students with disabilities, limited English proficiency, diverse backgrounds, or varied potential career interests.[2] The act outlines the overall objectives of the reforms but provides considerable latitude to states and local partnerships to tailor school-to-work systems to their own needs and constraints. The STWOA specifies three key components as the foundations of STW implementation:

1. ***School-Based Learning.*** Classroom instruction linked to workplace experiences that provides students with the information and skills needed to identify and prepare for promising careers

2. ***Work-Based Learning.*** Work experience, structured training, and other workplace activities appropriate to students' career interest and linked to their school curricula

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[2]In addition, the STWOA encourages communities to use school-to-work components to serve out-of-school youths (for example, by linking General Education Development [GED] programs and work-based experiences).

3. ***Connecting Activities***. Efforts undertaken by partnership members to help employers and schools forge and maintain links between the school-based and work-based components

Specifically, school-to-work systems are required to include the following key elements in their designs:

- A planned program of training and work experience coordinated with school-based learning
- A program of study designed to meet state academic standards, including those established under GOALS 2000, and to meet the requirements necessary for transitions to postsecondary education and the achievement of a skills certificate
- Integration of academic and vocational education
- Broad instruction in the classroom and workplace that, to the extent possible, exposes students to all aspects of an industry
- Linkages between secondary and postsecondary education and training
- Career awareness, exploration, and counseling
- Selection of a career major not later than the beginning of 11th grade
- Workplace mentoring and instruction in general workplace competencies
- Assistance for students in finding jobs and transitioning to postsecondary education and training

In addition, the STWOA specifies the types of members that should be included in state and local partnerships and some aspects of the organization and governance of these partnerships.

B. THE STW/YOUTH APPRENTICESHIP DEMONSTRATION

The STW/Youth Apprenticeship Demonstration preceded the STWOA by several years and was initiated by DOL with two objectives. First, the demonstration was intended to promote the development of work-based learning programs to help youths make a successful transition from school to employment. Second, the demonstration provided an opportunity to draw useful lessons about important program features and factors that affect the successful implementation of school-to-work transition programs.

1. The Demonstration

In September 1990, DOL awarded two-year grants to six organizations to plan and implement demonstration projects in nine sites. Because these initial projects were intended to explore a variety of approaches to school-to-work transition, DOL provided only general guidelines to grantees. As a result, the amount of emphasis placed on changing school-based programs or on creating workplace experiences varied widely. The type of workplace experience provided also varied widely, from paid employment and work-site technical instruction to less-intensive experience (such as field trips and interviews with employers).

During the two years the initial school-to-work grantees were designing, developing, and implementing their approaches, DOL focused increasing policy attention on a specific school-to-work transition model: youth apprenticeship. Because of this narrowing of focus, DOL provided an additional year of funding in fall 1992 to five of the original school-to-work grantees to allow them to structure their projects according to the youth apprenticeship model. DOL also awarded 10 new two-year grants for youth apprenticeship demonstrations. Nine went to new organizations and one went to a prior grantee for a project in an additional occupational area.

Under the youth apprenticeship model, DOL expected all grantees to implement programs that have a well-defined occupational focus beginning in grade 11 or 12, but that are broad enough for students to choose from a variety of career options (including work or postsecondary education) at the end of high school. The programs must also have coordinated school- and work-based components and lead to both a high school diploma and an approved certificate of occupational skills competency.

Some of the goals and other specific elements of youth apprenticeship programs were specified in the STW/Youth Apprenticeship Demonstration grant solicitation and other materials provided to grantees. Each grantee is expected to progress toward specific goals for school-site and work-site components. At the school site, these goals are:

- Career counseling and guidance to help students identify career interests and goals and understand how the youth apprenticeship program works
- Integration of academic and vocational-technical instruction
- Integration of work-site activities with school-based learning
- Maintenance of high academic standards to facilitate admission to postsecondary education (The program must meet state education standards; *all* courses must satisfy graduation requirements and be accepted by postsecondary institutions.)

At the work site, the objectives include:

- Formal, structured, progressive skills development integrated with school-site learning
- Employer-paid work experience, with progressive earnings based on skills and experience
- The use of a job coach to supervise, train, and assess students
- Development of sound work habits and behaviors
- Instruction in general workplace competencies, including (where appropriate) ability to manage resources, work productively with others, acquire and use information, understand and master systems, and use technology

Grantees were expected to ensure that decisions about program design were made by a broad-based group of stakeholders, including teachers, counselors, and administrators from secondary and postsecondary institutions, as well as representatives from the employer and labor communities. Grantees were encouraged to coordinate school- and work-site learning through joint efforts by teachers and employers in developing curricula.

2. The Demonstration Sites

All grantees were to work toward implementing a youth apprenticeship program with the guiding principles outlined here. Despite this common goal, however, the grantees differed significantly in how they implemented the school-based and work-based components and the extent to which they connected the two (see Table I.1). They varied in the specific forms of workplace experience provided: duration, pay,

TABLE I.1

MAJOR FEATURES OF DEMONSTRATION PROJECTS
IN SCHOOL YEAR (SY) 1994-1995

Program Model and Participation	School Program Components	Workplace Experiences
Boston Private Industry Council, Boston MA **Health Care and Financial Services**		
ProTech Health Care		
Primarily high school program starting junior year that encourages students to pursue postsecondary education and career in allied health fields First students enrolled fall 1991 SY 1994-1995 participation: 151	Students clustered in English and science classes and homeroom Attempts to make English and science curricula applied Math and science requirements strengthened for ProTech students	Unpaid clinical rotations at hospitals one afternoon per week during that part of junior year Paid part-time jobs beginning second half of junior year and continuing through senior year
ProTech Financial Services		
Primarily high school program starting junior year that encourages students to pursue postsecondary education and career in financial service industries First students enrolled fall 1993 SY 1994-1995 participation: 117	Students clustered in English and computer or business classes Attempts to make English classes more applied	Unpaid work-site rotations one afternoon per week during first part of junior year Paid part-time jobs beginning second half of junior year and continuing through senior year
Craftsmanship 2000, Tulsa, OK **Metalworking**		
2 + 2 program at Tulsa Technology Center that prepares students for careers in metalworking First students enrolled fall 1992 SY 1994-1995 participation: 26	Students grouped for entire school program at the technology center Metalworking curriculum developed by industry partners Students take applied classes in math, physics, and English	Full-time summer jobs after junior year Part-time work begins second semester of first postsecondary year Students paid stipends throughout four-year program
Gwinnett Youth Apprenticeship Program, Gwinnett County, GA **No Occupational Focus**		
Enhanced cooperative education program for juniors and seniors tied to students' career interests First students enrolled fall 1993 SY 1994-1995 participation: 42	Weekly seminar provides work readiness skills and opportunity to complete project describing work experience.	Students receive credit for approved jobs.

TABLE I.1 *(continued)*

Program Model and Participation	School Program Components	Workplace Experiences
Illinois State Board of Education, Chicago and Rockford, IL Metalworking		
Chicago		
Two-year program starting junior year to prepare students for metalworking careers First students enrolled fall 1993 SY 1994-1995 participation: 40	Students grouped in some applied academic and vocational classes for half of school day	Job-shadowing opportunities during junior and senior years Program attempts to find summer and school-year jobs for students
Rockford		
Four-year, 2 + 2 program that leads to an associate's degree in a metalworking-related field First students enrolled fall 1992 SY 1994-1995 participation: 59	Students grouped in vocational class Academic class at home schools for half day; vocational course at special training facility for rest of day	Six-week paid job shadowing during summer after junior year Part-time jobs during senior year; full-time jobs summer after senior year and during post-secondary years
Manufacturing Technology Partnership, Flint, MI Manufacturing		
Two-year program that prepares students for General Motors' Skilled Trades Apprenticeship Program First students enrolled fall 1992 SY 1994-1995 participation: 106	Students grouped in vocational course at regional vocational center Students spend half day at home schools for academic class and other half at vocational center. Special vocational course developed with input from General Motors and community college; emphasizes basic skills and broad exposure to skilled trades	Formal training at General Motors two hours a day for [illegible]dents selected by General Motors; paid part-time jobs during junior and senior year and summers for students hired by small companies
MechTech, Inc., Baltimore, MD Metalworking/Machining		
Four-year 2 + 2 program to prepare students for skilled machine manufacturing careers and registration as an apprentice First students enrolled fall 1992 SY 1994-1995 participation: 13	Students grouped in vocational course	Part-time jobs in junior and senior year Following high school, students can attend community college and continue part-time employment.

TABLE I.1 *(continued)*

Program Model and Participation	School Program Components	Workplace Experiences
Middle Georgia Aerospace, Houston, Bibb, and Dodge Counties, GA **Aerospace Technology**		
Three-year (2 + 1) program to train aircraft structural mechanics First students enrolled fall 1993 SY 1994-1995 participation: 66	Students grouped at vocational school Junior-year vocational classes held at home high schools; senior-year vocational classes at postsecondary technical institutes	Two weeks paid orientation/job shadowing summer after junior year Workplace mentors assigned
Pennsylvania Youth Apprenticeship Program, Lycoming, Philadelphia, and York, PA **Metalworking**		
Lycoming		
Two-year youth apprenticeship program First students enrolled fall 1991 SY 1994-1995 participation: 42	Small, specially created school three days per week replaces attendance in home school districts. New project-oriented academic curriculum designed to link school and work-site experiences Interdisciplinary team teaching	Work as paid apprentices junior and senior years, two full days per week under guidance of an assigned mentor
Philadelphia		
Two-year youth apprenticeship program First students enrolled fall 1992 SY 1994-1995 participation: 12	Three days at school; grouped in academic classes and share vocational classes with other students Some thematic projects incorporated into academic curriculum	Work as paid apprentices junior and senior years, two full days per week under guidance of an assigned mentor
York		
Two-year youth apprenticeship program First students enrolled fall 1992 SY 1994-1995 participation: 17	Three days school-within-a-school at vocational center New project-oriented academic curriculum designed to link school and work-site experiences	Work as paid apprentices junior and senior years, two full days per week under guidance of an assigned mentor
OaklandWorks, Oakland, CA **Media, Health and Bioscience, Law and Government, Computers**		
Career academy program beginning in 10th grade in four high schools Program began summer 1993 SY 1994-1995 participation: NA	Students grouped in two or three academic classes and one lab class Some interdisciplinary projects	Students assigned to mentor in 10th grade Job shadowing in 11th grade and paid internships the following summer Some seniors participate in short-term paid spring internships.

TABLE I.1 *(continued)*

Program Model and Participation	School Program Components	Workplace Experiences
Sears/Davea, DuPage County, IL **Appliance Repair**		
One- or two-year program to prepare students to be appliance repair technicians First students enrolled September 1991 SY 1994-1995 participation: NA	New competency-based vocational curriculum developed by Sears; combines principles of physics and applied technical exercises Special equipment donated by Sears for classroom use	One-week work-site internships in each of three different departments at local Sears service center Students may seek part-time jobs at Sears
Scripps Ranch High School, San Diego, CA **No Occupational Focus**		
New high school opened fall 1993; emphasizes career development and business involvement Youth apprenticeship group formed spring 1994 SY 1994-1995 participation: 84	Students grouped in advisory period according to interest in one of four broad career clusters All students maintain career/academic portfolios Longer class periods (105 minutes) and alternating day course schedule	Job shadowing and work-site tours
Seminole County/Siemens, Seminole County, FL **Electronics/Telecommunications**		
Seniors trained to become electronic technicians; those who meet Siemens performance criteria may enroll in two-and-a-half year apprenticeship program First students enrolled fall 1992 SY 1994-1995 participation: 35	Students grouped in vocational class Tech-Prep electronics sequence recommended, including applied academics	Formal training six hours a week at Siemens using a curriculum adapted from Siemens' European apprenticeship program
Toledo Private Industry Council, Toledo, OH **Industrial Automation and Robotics, Medical and Dental Assisting, Carpentry, Architecture and Drafting, Office Skills**		
One- or two-year program for students selecting careers in one of five occupations First students enrolled spring 1993 SY 1994-1995 participation: 4	Participating students grouped in vocational courses and some academic classes	Top juniors and seniors matched with employers for part-time employment Students may work full-time during the summer
Workforce LA Youth Academies, Los Angeles, CA **No Occupational Focus**		
One- or two-year program to provide work experience to 11th- and 12th-grade students at risk of dropping out First students enrolled September 1990 SY 1994-1995 participation: NA	Special class one afternoon per week to develop general employability skills and basic skills	Jobs four afternoons per week under guidance of an assigned work-site mentor

SOURCE: Site visits to the School-to-Work/Youth Apprenticeship Demonstration sites.

NA = not available.

emphasis on career exposure activities, and opportunities to build occupational skills. The grantees also differed in the school-based changes made to accommodate their school-to work programs. These changes included clustering participating students in academic classes, offering applied academics courses to these students, and providing vocational courses in the occupational field. Appendix A includes more-detailed descriptions of the site programs as they were implemented in school year 1994-1995. Several of the sites planned significant changes to the program designs for the following school year or a year later.

The 15 grantees serve students with different career interests. Most of the projects focus on manufacturing occupations, particularly ones in metalworking. Within the metalworking area, however, some diversity exists in occupations and industries. For example, the Manufacturing Technology Partnership project in Flint focuses on skilled automotive trades, including those of electrician, sheetmetal worker, tool and die maker, welder, drafter, and machinist. The Pennsylvania Youth Apprenticeship Program and MechTech, Inc., focus more narrowly on the machine trades. Service and other occupations are also represented in the projects. Over the course of the demonstration, several sites began expanding into additional occupational areas; for example, many of the metalworking programs were joined by health care programs using the same or a similar model. A few of the programs did not focus on particular occupations but provided broad exposure to several occupational areas.

The demonstration grantees included some of the earliest and most innovative school-to-work programs in the country, and all gained valuable implementation experience. It is thus no surprise that several sites were awarded direct local partnership grants under the STWOA in late summer 1994. For example, ProTech in Boston and Craftsmanship 2000 each received grants to continue and expand their collaboratives and models. Projects operated by Scripps Ranch High School in San Diego and Senn Academy of the Illinois State Board of Education's Chicago site were included in larger partnership grants awarded to San Diego County and a Chicago community.

C. THE DEMONSTRATION EVALUATION

The STW/Youth Apprenticeship Demonstration represented a major initiative to promote experience with school-to-work transition programs, which are still relatively new in American education. The evaluation of the demonstration projects was thus viewed as part of an overall exploratory effort to increase U.S. understanding of program approaches, instead of a rigorous evaluation of program impacts. The broad objectives and methods designed for the evaluation reflect both the overall limited experience with these types of programs and the early stages of implementation for the projects. The evaluation began in spring 1991, soon after the initial grantees began implementing their programs, and ended in fall 1995.

The evaluation sought to present a primarily qualitative assessment of the planning, implementation, and effectiveness of the demonstration programs.[3] The evaluation had three broad objectives:

1. Describe the projects' features and development, including the nature and extent of organizational partnerships
2. Document the experiences of students participating in the programs
3. Identify factors that are likely to affect the implementation and effectiveness of future transition programs

To address these objectives, we used five methods to collect detailed data about the demonstration projects: (1) executive interviews; (2) focus groups; (3) observation of program activities; (4) examination of project documents, records, and curriculum materials; and (5) abstraction of student data from school and project records.

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[3]In total, the 15 demonstration grantees operate programs in 22 different sites. However, because of lags in implementation, turnover in key staff, and the re-funding of first-round grantees for only one year, the evaluation focused most intensively on a large subset of these programs. Although the Pennsylvania Youth Apprenticeship Program was operating in six locations during the demonstration period, we visited only the Lycoming, York, and Philadelphia sites. We visited the Sears/Davea, Workforce LA, and MechTech, Inc. sites from the first round of grantees, and the Gwinnett and Toledo Private Industry Council programs from the second round, somewhat less often than other sites.

1. Site Visits

The first four data collection methods were employed primarily as part of visits to the demonstration sites. Interviews were conducted on-site with central project staff members and other key staff members involved in the planning and operation of the transition project. Focus group discussions were held with participating students, employee mentors, lead teachers, and counselors. During each site visit, evaluation staff members observed a sample of key classes and student work sites; they also collected program-related materials such as marketing brochures and lesson plans. Site visits were conducted approximately once each year, beginning in fall 1991 and ending in spring 1995, with most grantees from the first round receiving more visits than second-round grantees.[4]

Site visit data collection was structured around a detailed outline for documenting the transition projects. This documentation outline covered five general issues:

1. ***Program Development.*** Who are the major partners in the transition project? Who initiated and developed the program design, and how was it developed?

2. ***Occupational Objectives.*** What occupational goals did the project seek to promote, and how are these goals reflected in the program design?

3. ***Program Components.*** What *is* the program? How does it modify the experiences of students compared with the high school program previously in place?

4. ***Program Operation.*** How does the program work? How are students recruited and selected for the program? How do they progress through stages of participation? How is students' performance at school and in the workplace assessed?

5. ***Student Participation and Outcomes.*** Who takes part in the program, what do they do in the program, and how well do they make the envisioned transition to employment?

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[4]First-round grantees were all visited in fall 1991, spring 1992, and spring 1993; those that continued their programs beyond the extended grant period were visited in 1994 and 1995. Second-round grantees were visited for the first time in spring 1993, and then again in 1994 and 1995.

2. Student Data

The STW/Youth Apprenticeship Demonstration evaluation was designed to allow an analysis of student characteristics and outcomes. This analysis was intended to support the qualitative assessment of program operations and service delivery by describing the students enrolled, their involvement in program activities (school-based and work-based), and the levels of success they achieve in these activities. Given the evaluation design, it was not feasible to select comparison or control groups to provide estimates of what student outcomes would have been without the school-to-work projects. Thus, it is important to be cautious about drawing inferences from any outcome data about the impacts of the demonstration programs on students or the effectiveness of the programs.

To conduct the analysis of student participation, MPR asked each demonstration project to provide (from school and project records) three types of data for each student enrolled:

1. ***Baseline Data.*** Demographic characteristics (age, primary language spoken at home, gender, and racial/ethnic group), as well as measures of school performance and academic ability in the year prior to the student's entry into the demonstration program

2. ***Program Activity and Interim Outcomes.*** High school performance indicators, such as grade point average (GPA) and attendance for each marking period the student is enrolled in the program, and high school graduation. For programs that include a college component, college progress measures, including credits earned and GPA per semester, intended major, and the date and type of degree/certificate attained. Characteristics of workplace experiences, such as hours per week, start and stop dates, wages, employers, and job titles

3. ***Exit Information and Postprogram Outcomes.*** Date and reason for exiting the program (including program completion), and the student's involvement in or plans for employment or higher education after leaving the demonstration program

MPR developed data collection forms, tailored to each site's needs and access to the requested data. Sites were asked to send baseline data for each new "cohort" of students in October of each year or within

a month of program enrollment.[5] Program activity data was to be provided to MPR after each marking period, and exit information when a student completed the program or left early.[6]

Many of the demonstration sites experienced great difficulty in obtaining and documenting the requested data. Some sites did not have central administration staff with easy access to relevant school records. Others--those with students drawn from many feeder schools for all or part of the day--faced the prospect of having to collect the data from as many as 14 different high schools. In a few sites, turnover in key staff or reductions in available clerical staff delayed or prevented the completion of all data collection forms. Several programs did not place priority on and were reluctant to devote resources to this data collection task. These challenges affected the comprehensiveness and completeness of the student data obtained by MPR and, subsequently, the extent of the data analysis.

D. OVERVIEW OF THE REPORT

The remainder of this report outlines the implementation experiences of the demonstration programs and the factors that have affected their success. Chapter II describes how the sites recruited and selected students for enrollment, and the number, characteristics, and retention of program participants. Chapters III, IV, and V discuss the approaches used to implement school-based learning, work-based learning, and integration activities, respectively. Chapters VI and VII examine two other key school-to-work components: (1) secondary-postsecondary linkages, and (2) counseling and guidance. Chapter VIII focuses on the partners involved in each program and the roles they play, as well as the resources used to plan and implement the demonstration programs. Finally, Chapter IX presents a summary of the major

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[5]A cohort is defined as the group of new enrollees who enter a school-to-work program during the same school year. Because most of the demonstration programs were designed to enroll new students each fall semester, instead of continually throughout each year, cohorts are designated by the fall semester in which students' participation began (for example, fall 1991 or fall 1992).

[6]Boston's ProTech provided data on diskette--a combination of school district data files and site-based management information system (MIS) data. OaklandWorks also provided school records data on diskette.

findings and recommendations for policies and strategies that may facilitate the development of future school-to-work initiatives.

II. ATTRACTING STUDENTS TO SCHOOL-TO-WORK PROGRAMS

A key factor in the success of school-to-work programs is their ability to attract and retain students. The quality of the students, measured broadly, and the number of them participating can affect employer satisfaction, school staff's sense of accomplishment, individual student outcomes, and costs--all of which can influence the long-term viability of the program. Thus, promoting participation was a large part of the demonstration sites' efforts.

In this chapter, we describe the programs' recruiting and selection strategies, as well as the students who actually enrolled. We first discuss the methods the sites used to market the programs to secondary school students and their parents (Section A). Second, we describe the process of selecting student participants, including the extent to which the programs targeted particular groups of students and the selection criteria used to choose program participants from among the pool of applicants (Section B). Third, we report on students' reasons for entering the demonstration programs, based on comments made in focus group discussions (Section C). Fourth, we present an analysis of program participation based on student data from the sites. This analysis examines the number and characteristics of students enrolled in the programs and their duration in the programs (Section D). Finally, we summarize the salient issues affecting the school-to-work programs' efforts to attract and retain student participants (Section E).

A. PROMOTION AND RECRUITMENT EFFORTS

A big part of the challenge facing school-to-work programs is enrolling participants. Their ability to do so in the long run depends, in part, on the quality and appropriateness of the learning activities they provide, as well as the reputation that the programs earn in the local community. However, well-organized promotion efforts can also affect the extent to which programs attract the desired number and types of students.

Most of the demonstration sites market the school-to-work program to a broad spectrum of the student body, despite enrollment objectives that are more focused (see Table II.1 and Section B). Only two sites--Seminole County/Siemens and the Toledo Private Industry Council programs--promote the program primarily to vocational students already enrolled in specific courses. Most of the sites conduct schoolwide marketing campaigns in the institutions or communities participating in the demonstration. Therefore, although most of the sites have identified criteria to define the student population most appropriate for the program, meeting these enrollment goals is generally accomplished through effective screening of applicants instead of targeted promotion.

Although the demonstration programs have different designs and target occupations, their marketing strategies have many common elements. These include:

- Presentations in school assemblies, homerooms, and key classes
- Letters sent to students' homes
- Distribution of brochures, applications, and other program materials
- Information sessions for parents and students

Recruiting presentations and program documents generally outline the components of the program, the possible jobs students could obtain after completion of the program, and the criteria required for program entry. To gain parent and student interest, many recruitment flyers list the companies involved in the program.

Specific responsibility for promotion depends partly on where the program is located. If all school-based learning takes place within a comprehensive high school or several high schools, key teachers or counselors actively involved in the program in each school are usually responsible for making classroom presentations. When students are drawn from several high schools and spend part or all of their school day in a separate facility, the programs often have to rely on home school counselors and teachers to promote

TABLE II.1

PARTICIPANT TARGETING AND SELECTION STRATEGIES

	Target Population				
Grantee Name/Project Name	Grade Level	Entry Criteria	Recruiting Pool	Selection Process and Criteria	Selection Responsibility
Boston Private Industry Council					
ProTech Health Care	11	Cumulative GPA of 2.0 or better	All sophomores in participating schools	Interview	Joint: Private Industry Council, teacher, and employer representative
ProTech Financial Services		Attendance rate of 85 percent or higher		Review of application, including essay, parent statement, and teacher recommendation	
		Demonstrated interest in target occupation		Interest and attendance weighted more heavily than GPA	
Craftsmanship 2000	11	Cumulative GPA of 2.0 or better	All sophomores in Tulsa	Review of application; letters of recommendation; transcripts; essay on participation goals	Joint: Teachers and employer representatives
		Maximum 10 days absent per year		Performance on test of manual dexterity	
		Pass Applied Math or Algebra with "C" or better		Interview	
		Completion of other courses typical of sophomores			
		Pass drug test			
Gwinnett Youth Apprenticeship Program	11 or 12	Have identified a career focus	All juniors and seniors in three participating high schools	Interview	Teachers
		Cumulative GPA of 2.0 or better			

TABLE II.1 *(continued)*

Grantee Name/Project Name	Target Population: Grade Level	Target Population: Entry Criteria	Recruiting Pool	Selection Process and Criteria	Selection Responsibility
Illinois State Board of Education					
Rockford	11	Cumulative GPA of 2.0 or better Maximum five absences per year "C" or better in Algebra I No current intention to attend four-year college	Sophomores who meet entry criteria in participating schools	Review of application Attitude grade provided by teachers Employer interviews	Employers
Chicago	11	Cumulative GPA of 1.5 or higher Maximum 10 absences per semester Pass Algebra I	All sophomores in school	Teacher recommendations for positive attitude Interview	School counselors
Manufacturing Technology Partnership	11	Average or above-average grades Minimum ninth-grade reading level "B" average in Algebra Excellent attendance	All sophomores in county who meet entry criteria, based on school counselor identification	Interview Performance on mechanical and other skill assessment test Grades and attendance	Program staff, vocational administrators/counselors; employer representatives
Middle Georgia Aerospace	11	Cumulative GPA of 2.5 or better	All sophomores in the three counties	Interview Letters of recommendation Review of school record, including achievement in math and vocational course work	Joint: Representatives from the high schools, employers, and postsecondary technical schools

TABLE II.1 *(continued)*

Grantee Name/Project Name	Target Population: Grade Level	Target Population: Entry Criteria	Recruiting Pool	Selection Process and Criteria	Selection Responsibility
Pennsylvania Youth Apprenticeship Program					
Lycoming	11	Cumulative GPA of 2.0 or better "C" or better in Algebra I or Applied Math I. In good academic standing at home schools	All sophomores in the county	Interview	Co-op teacher
York	11	Aim for students with "C" average and "B's" or "C's" in math, but criteria are flexible	All sophomores in the 14 schools in the county	Interview	Joint: Project manager, vocational-school co-op teacher, and employer representative
Philadelphia	11 or 12	None	Sophomores and juniors in the school's Industrial Technology program	Interview Standardized test Essay Review of math and mechanical ability	Counselor and employers
OaklandWorks	10	None, although Health and Bioscience Academy generally seeks students with a GPA of 2.0 or better	All freshmen in the city	None	Academy director
Sears/Davea	11 or 12	None	All sophomores and juniors in county served by area vocational center	None	None
Scripps Ranch High School	9-12	Passing score on basic skills/general employability test	All students in the school	Review of application, resume, transcript, attendance records, and sample work from an academic class Interview	Schoolteachers

TABLE II.1 *(continued)*

Grantee Name/Project Name	Target Population: Grade Level	Target Population: Entry Criteria	Recruiting Pool	Selection Process and Criteria	Selection Responsibility
Seminole County Siemens	12	Cumulative GPA of 2.75 or better Strong math aptitude	Seniors in the electronics vocational course at two high schools and, if space available, honors math students	Interview Essay Grades	Employer
Toledo Private Industry Council	11	None	All students in relevant vocational courses	Depend on individual employer needs, including math ability, technical ability, communication skills, maturity	Employer
Workforce LA	11 or 12	At risk of dropping out	All students in Los Angeles Unified School District (approximately 45 schools)	Review of transcript and application	Project staff at the district office

GPA = grade point average.

the program, many of whom have little connection to and interest in the program. Third-party partners or representatives of major participating employers sometimes help market the program to students; this strategy is less likely the more "feeder" schools that need to be visited.

Many of the demonstration sites have difficulty recruiting students due to the stigma associated with occupationally oriented school programs. This is a substantial barrier, particularly for programs in which students spend all or part of a day at a facility other than their home school (for example, a regional vocational center or training facility). To enroll the desired number of students, these programs generally must market to several or many home schools. In each school, the recruiting staff must overcome parent and student perceptions that the school-to-work programs somehow limit students' postsecondary options or encourage students to pursue "dead-end jobs." This situation is made worse by the frequent lack of cooperation or interest among home school counselors, who are often relied upon to promote the program and refer students. Several sites found that counselors discouraged students from applying or only referred students with low academic abilities because school staff members held the same negative views of occupational programs as did many parents.

Programs tried to overcome these obstacles in several ways. Some sites mailed promotion material directly to students' homes instead of relying on in-school contacts. A few sites conducted training sessions with home school staff members that described the program features, benefits of participation to students, and types of students desired. Some sites tried harder to have central program staff members (for example, from third-party partners or a regional vocational center) and employer representatives visit each home school. Several programs began implementing more than one of these promotion strategies. Most of the programs reported an improved outcome from their modified marketing efforts: a group of new student participants who better met the programs' target criteria.[1]

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[1]Some programs that modified their marketing approach simultaneously introduced new student selection criteria designed to achieve the same objectives. It is difficult to ascertain the extent to which reported improvements in the quality of student cohorts was due to each of these two factors.

Individual programs encountered other obstacles in their recruiting efforts. These included

- Reluctance of students, among the eight sites that required students to attend a training or vocational instruction facility for at least part of the school day, to leave their home schools and friends to participate in the school-to-work program
- Student resistance to forsaking after-school, extracurricular activities for work-based learning
- Insufficient numbers of students in the recruiting area with interest in the program's target occupation/industry
- Competition for participants with other school- or work-based programs
- Inaccurate perceptions or expectations about the target occupation among students and parents

The demonstration programs were not always able to overcome these obstacles, resulting in smaller than desired groups of students enrolled in some years.

Some sites devised strategies to address these problems. Several expanded their programs and recruitment to additional high schools, to attract more students with interests in the target occupations. A few programs changed their early information sessions to provide students and parents with more detail about the targeted career and work-site environments, sometimes by showing films of relevant workplaces or inviting employer representatives to attend and answer questions. Craftsmanship 2000 modified its program design to counter student concerns about leaving their home schools and to encourage greater student participation. Beginning in school year 1995-1996, participants will no longer attend the Tulsa Technology Center for all of their classes; instead, they will spend half of the day at their home schools taking academic courses and half of the day at the center taking vocational courses.

B. SELECTION OF STUDENTS

Enrolling students who have the potential to succeed in the program is an important part of any new initiative. The school-to-work programs had several objectives in identifying student participants: (1) to enroll students who would benefit most from the program; (2) to ensure participating students could meet

the challenges of the programs' school- and work-based components; and (3) to satisfy the needs of sponsoring partners, particularly employers. To meet these objectives, the demonstration sites had to establish a process and criteria for choosing program participants from the pool of applicants; these processes and criteria changed over time.

Although specific criteria for selecting students changed, most programs were able to identify a general target group for program participation from the start. For most of the demonstration sites, the target group is those students who are in the middle third of the academic distribution, have average or above-average math or science ability, and are not expecting to pursue a four-year baccalaureate degree.

The student target group for a few sites was somewhat different than that just described. Two demonstration programs included diversity goals in their selection process, for example. The Manufacturing Technology Partnership (MTP) in Flint emphasizes female and minority student participation in the metalworking program, an initiative originally conceived by General Motors (GM) and the United Auto Workers to help the organizations meet equal-opportunity goals for these populations in the skilled trades.[2] Although promotion activities do not focus specifically on these groups, program staff members place priority on enrolling nontraditional students to accommodate GM's preferences. Applicants who are not members of these groups are also selected, but generally are hired by other firms newly recruited to the program. The Oakland Unified School District also attempts to promote racial/ethnic diversity in the OaklandWorks youth academies, administered by the district as magnet programs. District staff members can approve or deny requests for students to transfer to academies in schools outside their normal jurisdictions. Unlike other demonstration sites, the Workforce LA Youth Academies specifically targeted students at risk of dropping out of high school in both their promotion and

[2]Other metalworking programs in the demonstration also sought female participants. However, recruiting and enrolling females was not an explicit objective of these programs, and their promotion or selection activities did not focus on maximizing female participation.

selection efforts, using paid jobs with the city government as an incentive for students to improve their school performance and graduate from high school.

To different degrees, the demonstration programs make operational their choice of target populations by instituting a process and criteria for selecting participants from the applicant pool (see Table II.1). As of school year 1994-1995, most of the programs screen for some minimum grade point average (GPA), math aptitude, and rate of absenteeism. The specific levels at which these minimum criteria are set depend largely on the overall distribution of academic achievement across the student body in participating schools and the types of student participants that sponsoring employers request.

Failure to implement selective screening can have negative consequences. Most programs either did not have minimum entry standards the first year or did not enforce them. Many did not have the luxury of being selective. Some, particularly in the first year or two of operation, were unable to generate greater numbers of student applicants than slots in the program. Many programs simply accepted all students who applied. Unfortunately, staff members and employers often were dissatisfied with the quality of participants. Early students in some programs, including MTP and ProTech, lacked the basic skills and maturity needed for school course work, workplace activities, and eventual entry into the programs' postsecondary components. Students often failed to perform at acceptable levels in school and at work; some were asked to leave the program, and others exited voluntarily. According to program staff, many students dropped out during the first year after realizing that they were not interested in the target occupation. High rates of exits and the poor quality of student participants led to employer concerns.

Most of the demonstration programs either defined selection criteria or began to enforce existing standards in the second year, primarily to address employer concerns. Many programs found it difficult to balance the target group criteria, however. The more selective they were on academic ability, the less likely students were to continue in the community or technical college part of the program and to pursue the program's target occupation. Program staff members reported that high-achieving students often left

the programs to pursue four-year postsecondary degrees in related or unrelated fields. Lowering the academic-achievement threshold, however, often meant students enrolled had more difficulty grasping the basic and technical skills required at the workplace and emphasized in vocational courses. Both outcomes were disappointing to employers who were providing ongoing workplace experiences to students; they generally expected participating students to have a minimum level of skills, be capable of learning new skills on the job, and remain committed to the target occupation or industry for which the employer was investing training resources. Most of the demonstration sites have refined their selection process several times to better meet employer expectations and to raise the probability of student success in the program.

Some demonstration of occupational interest and motivation is now a common part of the selection process. In addition to academic achievement, many programs added one or both of these criteria to screening after the first year or two of operation, to increase rates of program completion and employer satisfaction. These measures are intended to screen out students who are interested in completely different careers or in related careers that require a four-year degree and do not meet the identified labor needs of the employers. Several programs began requiring students to write an essay describing why they were interested in the target occupation; others required teacher evaluations of students' motivation and career interests. In several sites, this criterion is emphasized at least as heavily as academic achievement in determining which students are enrolled in the school-to-work programs.

Employer involvement in the selection of student participants has increased over time, generally at the initiative of the employers. Employers have identified and requested new criteria to be added to screening of applicants, as described previously. Perhaps more important, some programs added an interview with employers to the enrollment and selection process. In a few sites, such as the Pennsylvania Youth Apprenticeship Program (PYAP), students accepted into the program were always required to interview with employers to determine students' specific work-site placement (see Chapter IV). By the second and third years of operation, however, employers in many more programs were active in an initial, face-to-face

review of student applicants. In some sites, employer involvement is intensive. Students applying to the Rockford, Illinois State Board of Education (ISBE) sites undergo a "pre-interview" with one of the sponsoring employers, and then three back-to-back 15-minute interviews with other employers. During this series of interviews, employers determine which students should be accepted and which work sites are likely assignments. In some cases, students meet with a team of employers, teachers, and central program staff members; in other cases, students interview directly with employers (see Table II.1).

C. STUDENTS' REASONS FOR ENROLLMENT

Students who apply for and are accepted into school-to-work programs may have different expectations about how a program is likely to affect them educationally and occupationally. Their reasons for enrolling may, in turn, affect their outcomes. Those who are interested solely in earning income during high school may not reap the benefits of skills training or take advantage of postsecondary education opportunities. Students whose main reason for entering a program is the promise of postsecondary financial aid may be more likely than others to continue their education after high school.

In focus group discussions with evaluation staff members, students in the school-to-work demonstration programs reported a range of motivations for entering the programs.[3] Four reasons were cited most frequently. First, participants in almost all focus groups identified current income as a primary motive for enrollment; students in a few of the programs pointed out that most part-time jobs available to high school students pay less (the national minimum wage is $4.25 per hour) than jobs provided as part of their school-to-work programs. Only in the Craftsmanship 2000 discussion were wages rated as not very important in the decision. Second, in the demonstration sites that provided financial incentives for

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[3]Informal focus group discussions were conducted with students either at school or at the work site. Information shared did not necessarily represent the views of all students in any school-to-work program, since only a sample of students participated in a focus group at any site. In some cases, students participating in the focus groups were selected nonrandomly or represented only a small proportion of the total number of participants in a program.

postsecondary matriculation (Seminole County/Siemens, Philadelphia PYAP, Craftsmanship 2000, Rockford ISBE, and MTP), students cited these incentives--primarily help with tuition and other types of financial aid--as a main reason for their interest. Third, some students in the Seminole County/Siemens, Craftsmanship 2000, Philadelphia PYAP, York PYAP, and Rockford ISBE programs emphasized the importance of gaining work experience while in high school and said this aspect of the program influenced their decision to participate. Those in Seminole County/Siemens and York were particularly interested in getting experience in the program occupations because they might have long-term interest in them. Students at Seminole County/Siemens also felt that, because the firm is well known, the work experience would provide them with a "good reference" in seeking other jobs later. Fourth, students in a few programs (York PYAP, Rockford ISBE, OaklandWorks, Scripps Ranch High School) cited a desire to try out a possible career or trade as their motive for entry. Students in most programs had little previous knowledge of or interest in the target occupation when they enrolled.

Students also cited other reasons for entering the programs. The three students in the Lycoming PYAP discussion said they were bored in school and entered the program to "try something different," with the greatest appeal being the promise of hands-on instruction. A few students in the focus groups mentioned being "pushed" into the program by family members. A student in the MTP program said he was most influenced by a GM worker's advice that the program "was an opportunity of a lifetime and, if I didn't take a chance with this, what else would I get?"

D. PROGRAM PARTICIPATION

The extent to which school-to-work programs can attract and retain the desired number and types of students affects their long-term viability. Although the School-to-Work Opportunities Act (STWOA) promotes a broad school-to-work system that serves large numbers of students, many communities are likely to build from earlier youth apprenticeship programs that contain the same essential elements as STWOA-funded initiatives. These early programs are under pressure to expand; the experience of the

demonstration sites suggests, however, that a number of factors are likely to constrain program growth. Such factors as the choice of occupation, the target population defined, and the number and types of local employers willing to become involved can affect program scale, the types of students who participate, and the likelihood that participants will drop out.

In this section, we discuss each of these measures of participation. Data are based on information provided by program staff on each student participant. Appendix C contains detailed tables documenting aggregate data for each site.

1. Program Size

Most of the demonstration programs serve relatively small numbers of students (Table II.2). Only the OaklandWorks youth academies admit more than 100 students each year. Boston's ProTech, the Gwinnett Youth Apprenticeship Program, MTP in Flint, and the Scripps Ranch High School program enroll more than 50 students in a given year. Most sites have between 10 and 30 students in each cohort.

Several factors appear to influence the size of a school-to-work program. Of these factors, employer commitment is probably the most important. For the most part, the number of workplace positions available for students determines how many students will be enrolled in a school-to-work program--at least among programs that have an ongoing workplace activity for students. Many of the programs, primarily those initiated by schools (with or without the help of third-party organizations), have struggled to find employer partners willing to provide these positions, and were often forced to enroll fewer students than was desired. (This occurred, for example, in the Chicago ISBE and the Toledo Private Industry Council programs.) In contrast, sites with the largest number of participants are those in which employers initiated the program or made firm commitments during the early planning stages to provide student positions; these employers/sites include the hospitals in ProTech, Health Care GM in the MTP program, and Boeing, Northrop, and McDonnell Douglas in the Middle Georgia Aerospace program.

TABLE II.2

NUMBER OF STUDENTS ENROLLED, BY COHORT

Grantee Name	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Boston Private Industry Council				
ProTech Health Care	87	85	NA	76
ProTech Financial Services			72	68
Craftsmanship 2000		17	11	10
Gwinnett Youth Apprenticeship Program			52	48
Illinois State Board of Education				
Chicago		26	29	33
Rockford		15	26	34
Manufacturing Technology Partnership		50	54	52
Middle Georgia Aerospace			39	41
OaklandWorks		282	312	NA
Pennsylvania Youth Apprenticeship Program				
Lycoming	13	12	16	17
Montgomery		14	14	27
Pittsburgh		11	15	16
Philadelphia		10	5	12
York		20	11	10
Scripps Ranch High School*			88	NA
Seminole County/Siemens		21	13	28
Toledo Private Industry Council		7	13	10

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Enrollment into the Scripps Ranch Youth Apprenticeship is conducted in the early spring of each year; spring 1994 enrollees are counted in the fall 1993 cohort.

NA = not available.

Other characteristics of the workplace experience also affect the size of the program, although not always in a consistent manner. For example, we might expect that programs in which students spend many hours at the work site, are paid for their work hours, and receive significant mentor supervision would have the smallest number of participants, primarily because fewer employers would be willing to contribute the resources to support this type of program. However, the ProTech and MTP programs, both of which involve students in extensive paid workplace experiences, have among the largest numbers of participating students. On the other hand, students in the largest program--OaklandWorks--participate in only a summer job between 11th and 12th grade, and these positions are completely subsidized by special city funds. Another program with a large number of students, Scripps Ranch High School, engages students primarily in job shadowing and work site tours. One possible explanation for the observed inconsistent relationship between program scale and the intensity of workplace activity may be that the size of the employer partners matters more in determining both the number of students provided positions and the types of workplace experiences offered; large employers have the resources to support more students in more-intensive activities. Still, site visit interviews with other programs, particularly those that rely on small firms, suggest that the difficulty of recruiting employers willing to pay students for training and work experience does constrain the number of students enrolled.

The programs' ability to recruit eligible students also affects the size of enrollment. Successful recruitment depends primarily on finding enough students who are interested in the target occupation, as described earlier. Many of the programs with a metalworking/machining focus (including some of the PYAP sites, the ISBE sites, and Craftsmanship 2000) have had difficulty attracting students to the program. The sites involving very large, well-known employers appear to have the fewest recruitment difficulties and generally have met their enrollment goals. A few students in the focus groups reported that obtaining work experience with a well-known employer was one of their main reasons for applying to the

school-to-work program, because they believed that having this experience on their resumes would broaden their subsequent employment options.

The number of high schools and grade levels from which students are drawn is also a factor in determining program size. The programs that enroll large numbers of students generally involve multiple high schools. This reflects the difficulty of recruiting many eligible students interested in a particular occupational field from within a single school. As an alternative way of expanding the number of interested students, some sites enroll students from more than one grade at a time. Some of the largest programs recruit and admit students from grades 11 and 12 (Gwinnett), grades 10, 11, and 12 (OaklandWorks) or grades 9 through 12 (Scripps Ranch High School). Other programs generally restrict new enrollment to either juniors or seniors.

Efforts to expand enrollment during the first several years of the programs have met with limited success. Despite goals to increase the number of entering students, about three-quarters of the sites for which data were available held even or lowered the number of participants admitted in the second year of program operations. Several of the PYAP sites and Craftsmanship 2000 have had difficulty recruiting additional students interested in metalworking and obtaining commitments from employers for student positions. Despite a reduction in the cost of supporting a student in the Craftsmanship 2000 program, employers were willing to provide for fewer new students in the second year of the program, compared with the first year. Programs that rely on small employers had particular difficulty obtaining more slots for work-based learning. The Seminole County/Siemens program decided to enroll only seniors, instead of both juniors and seniors.

2. Characteristics of Student Participants

Some characteristics of the students enrolled varied significantly among the demonstration programs, particularly the proportion of students who were female or from minority racial/ethnic groups (Table II.3). For example, approximately 70 percent of recent students enrolled in the ProTech Health Care program were females, compared with 20 percent or fewer of recent enrollees in the ISBE programs, most of the PYAP sites, Craftsmanship 2000, and the Seminole County/Siemens program. A large percentage of new students in the ProTech, Pittsburgh PYAP, MTP, Chicago ISBE, and OaklandWorks programs were either African American or Hispanic. In contrast, a relatively small proportion of recent enrollees in the Craftsmanship 2000, Gwinnett, and Rockford ISBE sites were from minority ethnic groups. Very few students in any program either lived on their own (outside of their parents' home) or were parents themselves.

Recent program enrollees were similar across the sites in some measures of previous school achievement (Table II.3). Participating students in most of the sites were generally "average" students, those in the middle third of the academic distribution and whose GPA in the year prior to entering the program (usually 10th grade) was in the "B" to "C" range. Students in the Rockford ISBE, Gwinnett, MTP, and Seminole County/Siemens programs had, on average, somewhat higher preprogram grades than students in the other sites; the average preprogram GPAs for these sites were about half a grade higher than the similar measure for students in the Philadelphia PYAP, OaklandWorks, Toledo Private Industry Council, and Chicago ISBE programs. Average rates of student attendance across the sites were mostly similar--more than 90 percent. Not unexpectedly, there was some correlation between preprogram GPA and attendance; sites with lower average academic achievement also had lower attendance rates.

Three program features appear to influence differences among the demonstration programs in students' demographic characteristics and their prior GPA: (1) location of the site; (2) the program's target occupation; and (3) implementation of specific recruiting and selection goals. Not surprisingly, the

TABLE II.3

CHARACTERISTICS OF PARTICIPANTS
(Fall 1994 Cohort)

	Percentage of Students				Average Preprogram	
	Entered in 11th Grade	Female	Black	Hispanic	GPA	Attendance Rate
Boston Private Industry Council (ProTech Health Care)	99	70	44	39	NA	NA
Boston Private Industry Council (ProTech Financial Services)	100	57	36	36	NA	NA
Craftsmanship 2000	100	20	10	0	2.63	97.2
Gwinnett Youth Apprenticeship Program	8	58	0	0	2.82	93.3
Illinois State Board of Education						
Chicago	100	21	30	36	2.21	88.3
Rockford	91	21	0	0	2.96	98.3
Manufacturing Technology Partnership	100	44	35	2	3.03	96.2
Middle Georgia Aerospace	81	27	34	0	2.55	97.2
OaklandWorks*	22	68	65	17	2.04	82.3
Pennsylvania Youth Apprenticeship Program						
Lycoming	88	0	0	0	2.66	91.6
Montgomery	100	56	0	0	2.60	94.6
Pittsburgh	100	38	69	0	2.37	88.9
Philadelphia	42	17	17	0	2.03	91.0
York	100	0	0	0	2.27	91.4
Scripps Ranch High School	33	64	7	10	3.27	97.4
Seminole County/Siemens	0	14	29	7	2.87	98.3
Toledo Private Industry Council	80	40	30	0	2.15	90.2

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*The most recent OaklandWorks and Scripps Ranch High School data available are for the fall 1993 cohort.

GPA = grade point average; NA = not available.

programs that enrolled high proportions of minority students were those located in cities in which minority groups make up a large proportion of the overall population. For the most part, the programs in which relatively few females were enrolled were those that prepare students for metalworking/technology careers, traditionally male-dominated occupations in which female high school students showed little interest or were not explicitly targeted. Programs that focus on less traditionally male occupations, such as those in health, business, or office services (ProTech, OaklandWorks, Toledo Private Industry Council programs), and those with no specific occupational focus (Gwinnett and Scripps Ranch High School) have enrolled proportionally more female students. The MTP program is an exception; the relatively high proportion of female enrollees in this metalworking youth apprenticeship program is largely the result of an explicit targeting strategy, as described earlier.

Recruiting and selection strategies adopted by the demonstration programs also influenced each site's average GPA. Programs with well-defined, strictly enforced selection policies generally had among the highest average GPA of all the demonstration sites. For example, the Rockford ISBE program accepted students with a GPA of 2.0 or better and a grade of "C" or better in Algebra I. The Craftsmanship 2000 and MTP programs also screened applicants on the basis of grades; for MTP, the acceptable criteria were a GPA of 1.9 and a grade of "B" or better in Algebra I. The Middle Georgia Aerospace program accepted only students who maintained at least a GPA of 2.5 prior to their application to the program. In contrast, some of the PYAP sites and the Chicago ISBE program either had not instituted screening criteria or had very loosely defined policies. For example, the Chicago program tried to recruit students who had successfully completed Algebra I and who had better than average attendance, and the York PYAP site targeted "C" students with some strength in math.

The characteristics of students entering an individual school-to-work program, particularly their previous school achievement, can change over time depending on how screening approaches vary from year to year. The data on student enrollees do not always confirm stated changes in selection strategies.

For example, the average preprogram GPA in ProTech Health Care was identical for the first and second cohort, even though the program was reportedly tightening screening criteria. The same measure in the Chicago ISBE site was lower in each subsequent cohort, despite reports by program staff of more careful student screening on academic achievement. On the other hand, new selection strategies adopted by the Rockford ISBE and MTP sites did result in higher preprogram performance in later cohorts.

3. Program Retention

The impact of school-to-work program participation is affected by the extent of that participation. For a variety of reasons, some students are likely to withdraw before completing school-to-work programs. The duration of their participation depends on how well-informed they are about program activities, the extent to which these activities meet their expectations and needs, their ability to meet program requirements, and external factors unrelated to participation in the program.

All of the demonstration programs had some dropouts during each year of program activities (Table II.4). Although most of the programs included at least two years of high school participation in their program designs, every program had students in each cohort exit before beginning the second year. The percentage of participants continuing into the second year varied substantially across the sites. For example, more than 90 percent of students in Craftsmanship 2000's first cohort of students, and more than 70 percent of the second cohort, continued into the second year of the program. In contrast, only 29 percent of the Toledo Private Industry Council program's first cohort of participants were still in the program for a second year. Many of the programs enrolled high proportions of seniors. For programs in which high school graduation marks program completion, there is no second year of participation for seniors; this necessarily lowers the computed rate of students who continued into the second year of program activities. Largely because of this enrollment strategy, the percentage of second-year continuations is very low in the Gwinnett, Chicago ISBE, Philadelphia PYAP, Seminole County/Siemens, and Toledo Private Industry Council programs. Still, among programs that enrolled primarily juniors,

TABLE II.4

PROGRAM RETENTION

Grantee Name	Cohort	Point of Completion	Percentage of Students		Average Months in Program
			Continuing Second Year	Completed Program	
Boston Private Industry Council					
ProTech Health Care	Fall 1991	Second postsecondary	58	NA	22
	Fall 1992	year	71	NA	22
ProTech Financial Services	Fall 1993	Second postsecondary year	74	NA	16
Craftsmanship 2000	Fall 1992	Second postsecondary	94	0[a]	24
	Fall 1993	year	73	0[a]	16
Gwinett Youth Apprenticeship Program	Fall 1993[b]	High school graduation	4	77	5
Illinois State Board of Education					
Chicago	Fall 1992[b]	High school	38	77	13
	Fall 1994[b]	graduation	38	35	13
Rockford	Fall 1992	Second postsecondary	80	NA	22
	Fall 1993	year	77	NA	17
Manufacturing Technology Partnership	Fall 1992[b]	Second postsecondary	66	0[a]	23
	Fall 1993	year	67	0[a]	14
Middle Georgia Aerospace	Fall 1993	First postsecondary	NA	0[a]	18
	Fall 1994	year	NA	0[a]	6
OaklandWorks	Fall 1992	High school graduation	94	NA	NA
Pennsylvania Youth Apprenticeship Program					
Lycoming	Fall 1991	High school	85	69	18
	Fall 1992	graduation	75	17	27
	Fall 1993[b]		81	19	18
Philadelphia	Fall 1992[b]	High school	40	80	14
	Fall 1993[b]	graduation	40	40	7
York	Fall 1992	High school	80	75	19
	Fall 1993	graduation	64	0[a]	16
Seminole County Siemens	Fall 1992	Second postsecondary	67	0[a]	18
	Fall 1993[b]	year	46	0[a]	11
Toledo Private Industry Council	Fall 1992	High school	29	14	9
	Fall 1993[b]	graduation	8	85	7

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a]No students in the cohort completed the program during the data collection period.

[b]A high proportion of enrollees in the cohort were seniors.

NA = not available.

between 20 and 40 percent of enrollees exited during the first year of participation or between the first and second year.

Although the rate of program completion is an important indicator of success, the program designs and the period over which student data could be collected prohibit a thorough examination of this outcome. The definition of "completion" varies across programs; some program models include only the high school years, while other programs purport to have a postsecondary component. We identified a theoretical point of completion on the basis of the programs' stated models and our characterization of the existence of real links between the secondary and postsecondary components.[4] Because many of the demonstration programs enrolled their first cohort of students in fall 1993 and data collection was terminated in early spring 1995, we were unable to observe program "completion" for programs with a postsecondary component and even for some that include only a secondary component. Thus, so far, no students have completed many of the demonstration programs, largely because of the limited observation period. For programs with early cohorts (fall 1991 or fall 1992) in which primarily seniors were enrolled, there are computed completion rates. In these sites, the proportion of students completing the program is higher than the proportion continuing into the second year, because seniors were counted as completing, while they could not be counted as continuing.

Students who exited the demonstration programs left for a variety of reasons. Some exited voluntarily; others were asked to leave by program staff. Program staff gave four reasons for most of the early exits. First, in many programs students left because they were dissatisfied with the program or disinterested in the programs' target career (Table II.5). Particularly high proportions of students in the metalworking programs withdrew for this reason. Focus group discussions with students indicated that many of them knew little about the target career and were often unprepared for the environment at the work

[4]For example, we determined that programs in which employers were encouraged (but not required) to hire program participants who graduated from high school did not have a postsecondary component, although those hirings were viewed as important program outcomes.

TABLE II.5

PRIMARY REASONS FOR PROGRAM EXITS
(All Cohorts Combined)

Grantee Name	Percentage Dissatisfied with Program	Percentage Pursuing Full-Time Education/ Training	Percentage with Poor Attendance/Poor Performance	Percentage with Family/Personal Health Problems
Boston Private Industry Council (ProTech Health Care)	11	0	37	12
Boston Private Industry Council (ProTech Financial Services)	13	0	48	30
Craftsmanship 2000	33	17	33	17
Gwinnett Youth Apprenticeship Program	9	9	0	9
Illinois State Board of Education				
Chicago	67	0	28	17
Rockford	19	56	31	0
Manufacturing Technology Partnership	35	14	27	2
Middle Georgia Aerospace	14	14	29	0
OaklandWorks	NA	NA	NA	NA
Pennsylvania Youth Apprenticeship Program				
Lycoming	40	0	20	0
Montgomery	67	0	22	0
Pittsburgh	38	15	69	0
Philadelphia	80	20	0	20
York	56	11	56	0
Seminole County/Siemens	4	NA	NA	NA
Toledo Private Industry Council	14	0	64	7

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

NA = not available.

sites. Second, some students (particularly those in programs with a postsecondary component) exited because they chose to pursue full-time education instead of the combined work and study model of many of the demonstration programs. A few students included in this category left the programs because they needed to concentrate on their high school course work and were unable to accommodate time at the workplace. Third, many programs had to terminate students for poor behavior or performance either at school or at the work site, although most sites gave students several opportunities to improve. Approximately one-third of all early leavers exited for this reason. Finally, some students experienced personal or family problems that led to their dropping out. Students in some programs became ill or pregnant, others had to take care of ill relatives, and some moved out of the schools or districts in which the programs were offered. A small proportion of the students in the demonstration programs withdrew because of conflicts with extracurricular activities. Very few demonstration participants left the program as a result of dropping out of high school.

4. Students' Perceived Benefits of Participation

An important indicator of the success of a school-to-work program is whether students perceive a net benefit to participation. Moreover, students who view their experiences positively are more likely to promote the program to their peers, thus contributing to future enrollment. Students in the focus groups--including those who were critical of some aspects of program implementation--reported that the programs had given them some advantages over other students.

Students in general, including those who did not intend to pursue careers in the target occupations, believed the programs had a positive effect on them. In York PYAP, Lycoming PYAP, and MTP, students reported that schoolwork was more interesting because of the project and its teamwork orientation. This in turn caused their grades and/or attendance to improve. Several focus group participants from Workforce LA Youth Academies spoke about how program requirements--and their desire to keep their jobs--led them to maintain or improve their grades and attendance at their home schools. Similarly, students in the

MTP program reported that, in order to meet program requirements, they had to do more homework, leading some of them to make the honor roll for the first time. Students in the Chicago ISBE and PYAP sites believed that the program gave them technical skills they will need in the future and an advantage over students in regular vocational education. In both the York PYAP and Craftsmanship 2000 sites, a few students who had either not considered pursuing postsecondary education or had not considered it seriously were giving it more thought.

Students in both the MTP and Seminole County/Siemens programs believed that working for a well-known company had definite advantages. They also reported that a primary benefit of the program is the work experience, which will make their resumes more attractive. Students at the Chicago ISBE program felt the program allowed them to develop connections that might help them get a job after high school graduation.

Students in several programs reported less tangible benefits from participation. In both the Seminole County/Siemens and Workforce LA Youth Academies programs, students discussed their appreciation for being in a professional setting and being treated like an adult at the work site. In the Rockford ISBE session, students reported that the program gave them some focus for developing a long-term plan, compared with their friends who "still live day by day and don't care about their futures." In Craftsmanship 2000, students agreed that "the program makes you more mature because you have to do everything yourself" and that the time commitment to the program forced them to schedule their time more effectively. Students in the York PYAP and Workforce LA Youth Academies focus groups reported improving their social skills. Students in the Workforce LA Youth Academies also reported improved communication skills, which they considered critical to their future success.

E. ISSUES FOR RECRUITING AND MAINTAINING PARTICIPANTS IN SCHOOL-TO-WORK PROGRAMS

The demonstration sites promoted their programs in similar ways but met with varying degrees of success in attracting, selecting, and retaining students. As school-to-work becomes a broader initiative, stimulated by the new federal legislation, existing school-to-work programs (including those in the demonstration) will need to focus on expanding to serve additional students. The demonstration experience suggests some important lessons for school-to-work planners:

- ***Youth apprenticeship programs currently face obstacles in recruiting student participants.*** These significant barriers include (1) stigma associated with occupationally oriented programs; (2) student resistance to forsaking after-school, extracurricular activities for work-based learning; (3) not enough students in the recruiting area with interest in the program's target occupation/industry; (4) competition for participants with other school- or work-based programs; (5) inaccurate perceptions or expectations about the target occupation among students and parents.

- ***Screening carefully for interest in the target occupation can improve program success.*** Ensuring participant interest in the target occupation or industry can reduce rates of program dropout and improve employer satisfaction. Students for whom the target occupation and work-site environments are not appealing are most likely to exit early from a school-to-work program. Moreover, employers participating in youth apprenticeship programs have some expectations that students will remain committed to the occupation for which the employer is investing training resources. When students abandon the program for lack of interest or to pursue other careers, employers lose their investment. Over time, high rates of dropout for this reason can cause employer dissatisfaction.

- ***Pay appears to be a primary reason students participate in school-to-work programs.*** Students in focus group discussions most frequently report that current income is the main reason they enrolled in the program, partly because wages paid to participants in many sites are higher than those available to other high school students. This finding has implications for the development of school-to-work systems. If communities adopt unpaid workplace activities as options in an expanded system, student interest may wane. Students may be less interested in forgoing extracurricular activities or afternoon homework without payment for their workplace experiences, particularly in communities where regular, paid part-time jobs are available.

- ***Increasing the scale of youth apprenticeship programs can be difficult.*** School-to-work programs that include extensive work-based learning serve relatively small numbers of students and are likely to face challenges in expanding the size of their programs. In addition to obstacles in recruiting student participants (described previously), many find it difficult to recruit enough work-site positions for the number of students they would like to serve. Only a few demonstration sites substantially increased the number of participants in their original

programs during the demonstration period; some expanded by adding new programs that target different occupations.

III. CHANGING HOW STUDENTS LEARN AT SCHOOL

The primary objective of school-to-work initiatives, and youth apprenticeship programs in particular, is to help students develop the basic skills, occupational competencies, and broad employability skills required for successful entry into the workforce. Students' secondary school experiences are expected to contribute significantly toward this goal, laying a strong foundation for work-based learning and further education and training at the postsecondary level.

The demonstration sites were given considerable latitude in developing the school-based learning components of their programs. The U.S. Department of Labor (DOL) and the demonstration's technical assistance provider guided them in implementing some essential elements. Terms and definitions evolved over time, however, as practical experience and efforts to craft the national legislation began to distill what would eventually be identified as the key components of school-to-work systems. At a minimum, the grantees were encouraged to include in their school programs: (1) applied academic curricula and other courses that use occupational examples, interdisciplinary units, and work-site tasks; (2) technical instruction that involves students in lab work and simulated workplace activities and lessons; and (3) only courses that satisfy high school graduation and postsecondary admissions requirements, as well as the standards set under Goals 2000.

To implement these elements, many of the demonstration programs set out to modify the traditional high school program. Some adopted alternative scheduling practices, developed new academic or vocational courses to reflect a more integrated approach, defined sequences of courses for students interested in the target careers, or changed the instructional methods used in key courses. To varying degrees, they sought to include employer input in these new efforts.

The extent to which the School-to-Work (STW)/Youth Apprenticeship Demonstration had a direct impact on schools in participating programs varied significantly. In some demonstration sites, schools had

begun to incorporate some aspects of the school-to-work approach schoolwide before the youth apprenticeship program had been planned or implemented; the DOL grant activities were intended to build upon these earlier efforts. For example, several of the sites had already begun to implement Tech-Prep initiatives (Seminole County/Siemens, Middle Georgia Aerospace, the Illinois State Board of Education [ISBE] sites in Chicago and Rockford) or had career academies (OaklandWorks) prior to the demonstration and had therefore laid some of the groundwork for school-to-work curricula. In contrast, other demonstration programs needed or chose to devote a substantial amount of effort to developing and implementing curricula and school-based activities specifically for the school-to-work program and the students who participate in it (Pennsylvania Youth Apprenticeship Program [PYAP], Manufacturing Technology Partnership [MTP], Sears/Davea, Craftsmanship 2000, ProTech). A few sites did not emphasize the school-based components of the youth apprenticeship model.

In this chapter, we examine the specific school-based implementation strategies the demonstration programs pursued. In Section A, we discuss how the programs organized the school setting to facilitate school-based learning: where and how students took classes. In Section B, we describe the ways in which the sites arranged school curricula for program participants, including modifying curriculum content and methodology to reflect school-to-work goals. This section characterizes, among other features, site approaches to implementing programs of study, integrating academic and vocational education, and using skill standards. (We discuss linkages between school curricula and students' work-site activities in Chapter V, which is devoted specifically to this topic.) In Section C, we document the school-to-work participants' school performance. Finally, in Section D, we summarize the issues that have affected the development of school-based learning components.

A. ORGANIZING THE SCHOOL SETTING

Characteristics of the schools participating in school-to-work programs can influence the extent to which school-to-work educational reforms are implemented and desired outcomes realized. Two features

appear to have the greatest impact: (1) the type and number of institutions in which a program is implemented; and (2) the program's schedule of educational activities (see Table III.1). These characteristics seem to affect how easily and successfully schools can integrate academic and vocational education and develop concrete programs of study for students interested in the target career areas.

1. Location of School-Based Learning

School-to-work initiatives must accommodate secondary educational institutions that often have different missions and emphasize different aspects of student learning. Schools in many communities are comprehensive, focusing on academic course work and achievement, but offering vocational-technical courses for interested students. Other schools serve as vocational centers, either for a single community or a broader region. Some district or area vocational schools are full-day, while others serve students for only the portion of the day in which they are enrolled in vocational courses. Careful planning is required to promote the full array of school-to-work objectives in all of these potential locations.

As documented in some detail in our preliminary report, the STW/Youth Apprenticeship Demonstration programs are being implemented in three types of settings: (1) all instruction provided in a comprehensive school; (2) all instruction provided in an area, regional, or local vocational-technical center; or (3) instruction divided between a comprehensive school and a vocational school. The location of the school-to-work program was determined largely by the extent to which program planners viewed building technical skills as a primary objective of the program. Programs in which specific employers played a significant role in program planning (generally those targeted to traditional apprenticeship occupational fields) emphasized students' development of occupational skills. These programs were more likely to focus on a vocational center. In contrast, programs targeted on service sector industries or in which individual employers did not participate heavily in designing the program model were more likely to focus on comprehensive high schools. Other factors, such as the existence of vocational centers and

TABLE III 1

CHARACTERISTICS OF THE SECONDARY SCHOOL SETTING
IN SCHOOL YEAR (SY) 1994-1995

Name of Grantee and Project	Number and Type of Secondary Schools	Clustering	Other Schedule Features
Boston Private Industry Council			
ProTech Health Care (Health Care)	Three comprehensive high schools	Generally grouped in key science and English classes; clustering varies across schools.	
ProTech Financial Services (Finance)	Three comprehensive high schools	Generally grouped in English and computer or business classes; clustering varies across schools.	
Craftsmanship 2000 (Metalworking)	Special technology center	Clustered for complete school program--academic and vocational	In school for eight hours instead of six; school year is 220 days instead of 180; class periods are longer (1.5-2 hours); college-type class schedule
Gwinnett Youth Apprenticeship Program (No Occupational Focus)	Three comprehensive high schools	Grouped in a weekly seminar period	
Illinois State Board of Education			
Rockford (Metalworking)	Seven comprehensive high schools and a special training facility	Grouped in vocational class	Half day in training facility; half day at home school for academic classes
Chicago (Metalworking)	One comprehensive high school	Grouped in applied academic and vocational classes for half day	
Manufacturing Technology Partnership (Manufacturing)	Five comprehensive high schools and one area vocational center	Grouped in vocational classes at vocational center	Half day in training facility; half day at home school for academic classes
MechTech, Inc. (Metalworking Machining)	Several vocational high schools and many feeder schools	Grouped in vocational classes	Work-study program allows students to leave school early for work
Middle Georgia Aerospace (Aerospace Technology)	Three high school districts (with a total of approximately seven schools) and three postsecondary technical schools	Grouped in vocational classes	Seniors take vocational classes at technical schools
Pennsylvania Youth Apprenticeship Program			
Lycoming (Metalworking)	Special school housed on community college campus	Clustered for complete school program--academic and vocational	In school for only three days each week
York (Metalworking)	One area vocational technical school	Clustered for complete school program--academic and vocational	In school for only three days each week
Philadelphia (Metalworking)	One comprehensive high school	Clustered in academic classes; required vocational class is open to other students.	In school for only three days each week

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TABLE III.1 *(continued)*

Name of Grantee and Project	Number and Type of Secondary Schools	Clustering	Other Schedule Features
OaklandWorks (Media, Computers, Law and Government, Health and Bioscience)	Four comprehensive high schools	Clustered in two or three academic classes and one lab class	Block scheduling of designated academy classes
Sears/Davea (Appliance Repair)	One area vocational center and approximately 15 feeder schools	Clustered in vocational class	Half day in home school; half day at vocational center
Scripps Ranch High School (No Occupational Focus)	One comprehensive high school	Grouped in advisory period according to interest in one of four broad career clusters	Alternating day course schedule; longer class periods (105 minutes); half hour advisory period each day except Friday
Seminole County/Siemens (Electronics/Telecommunications)	Two comprehensive high schools	Grouped in vocational class (includes some nonapprenticeship students)	
Toledo Private Industry Council (Industrial Automation and Robotics, Medical and Dental Assisting, Carpentry, Architecture and Drafting, Office Skills)	Three comprehensive high schools	Clustered in vocational courses and some academic classes	
Workforce LA Youth Academies (No Occupational Focus)	Ten adult/vocational education sites and 45 high schools and options programs	Grouped in cooperative education class one afternoon each week	

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their reputation in the community for providing high-quality technical instruction, also contributed to decisions about where to locate the school-based learning component of the program.

Depending on the location of the school activities, some observable differences exist in program approach and the extent to which school-based learning incorporates school-to-work goals. In general, programs implemented solely in comprehensive schools focus less on technical instruction than do programs in the other two settings. In these programs, students may be partially grouped in key classes (such as vocational or occupationally relevant courses) and grouped less frequently in academic courses. An advantage of this arrangement is that students can remain at their home high schools and still join the school-to-work program.

School-to-work programs that take place solely within a vocational center or special facility (for example, the York and Lycoming PYAPs and Craftsmanship 2000) are more occupationally focused, offering both a strong vocational program and applied academic courses geared toward the target occupation.[1] These programs are structured as a "school-within-a-school"; often, the program has a core group of teachers, and students take most (if not all) of their courses together. The school-within-a-school approach facilitates curriculum integration, allowing greater opportunities for team teaching and incorporating an occupational theme into academic classes.

Drawbacks to implementing a school-to-work program entirely within an alternative school facility do exist, however. Demonstration experience suggests that students prefer to attend courses at their home schools; attending another school for even part of the day can prohibit or interfere with extracurricular activities and socializing. Several of the sites experienced recruitment difficulties because students were unwilling to leave their home schools to attend a vocational school or other special facility full-time. This barrier was sufficiently compelling for Craftsmanship 2000 to modify its program design, abandoning the

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[1]The term "applied academics" is used to describe curricula that teach concepts in science, math, language arts, and other subjects by involving students in active demonstration and application of these concepts in ways that simulate experiences and tasks in various occupations.

model of having students take all of their academic and vocational courses together at the Tulsa Technology Center. Beginning with students entering in school year 1995-1996, program participants will attend their home high schools for academic courses and the technology center only for vocational courses. Because students in Craftsmanship 2000 are recruited from multiple high schools, it is unlikely that new participants will have access to the applied and occupationally relevant academic curricula that earlier cohorts had while attending the technology center. Similarly, the Rockford ISBE program relinquished a plan to cluster students for both vocational and academic instruction at the training center because of lack of student interest in that model.

Several demonstration sites (Sears/Davea, MTP, Workforce LA Youth Academies, MechTech, Inc., and Rockford ISBE) use a setting in which programs are based partially in a comprehensive high school and partially in a vocational facility.[2] This setting offers some substantial challenges, however. ***Split-day programs*** for vocational students, which are quite common, seem to complicate a school's progress toward school-to-work educational reforms. The physical separation of academic and vocational teachers and instruction makes systematic communication across disciplines more difficult. Teachers report to different supervisors and principals, often do not know each other, and have no opportunities for casual meeting time. In this situation, curriculum integration requires that two administrations work together and share resources. These difficulties are exacerbated when a vocational center draws students from multiple high schools; home schools with only a few students in a particular school-to-work program are unlikely to change their teaching practices for the benefit of these students. Even if home schools offer applied academic courses, links to occupational courses are likely to span a range of careers and industries instead of focusing on the school-to-work target occupation.

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[2]Although academic and vocational courses in the Rockford ISBE program are provided at separate facilities, both are taught by teachers from the same school.

Split-day school-to-work programs require greater attention and commitment to integration by administrators and teachers than programs implemented in other settings. The difficulties may be reduced as school-to-work expands and the reforms become more widespread. For example, a single school-to-work program that focuses on metalworking may not attract enough students in each feeder school interested in that particular occupation to allow clustering of like-minded students in academic courses. It might be feasible, however, to group larger numbers of students in their home school academic courses by broader categories of career interests, such as Manufacturing Technology or Engineering and Industrial Technology. This clustering would allow students to experience some broadly relevant, contextual learning strategies, although examples and exercises might not always be directly targeted. Moreover, faculty designated to teach English, for example, in the Manufacturing Technology cluster could be teamed with relevant vocational instructors at the area vocational center for curriculum development. This use of broad career clusters to structure curricula and student grouping is one implementation approach expected under the School-to-Work Opportunities Act (STWOA).

2. Schedule for School-Based Learning

How the school day is organized for participants can affect program efforts to promote school-to-work outcomes. Such scheduling features as student clustering, longer class periods, and back-to-back scheduling of key classes (termed "block scheduling") can facilitate project-oriented, hands-on learning, interdisciplinary instruction, team teaching, field trips, appearance of guest speakers, and other special events related to the program. Modifying the traditional school "master schedule" can be complicated and even costly, however. The demonstration programs that adopted alternative scheduling practices faced substantial challenges in the planning and early implementation of these features; in some sites, they continue to face these challenges each year. Many of the sites pursued a program model that did not involve these scheduling challenges.

A few sites used expanded periods or block scheduling to maintain the camaraderie of participants and to promote project-oriented curricula, to different degrees of success.[3] Teachers and students viewed longer course periods both positively and negatively. Students in the Craftsmanship 2000 program reported appreciating the extra time they had to complete assignments, particularly lab activities that involved setup and cleanup of experiments (for example, those included in a Principles of Technology course). Vocational teachers at Scripps Ranch High School were pleased with the schoolwide 105-minute class periods for the same reasons. However, teachers in some disciplines found it more difficult to engage students' attention for the longer class periods. The block scheduling implemented by the PYAPs and OaklandWorks provided students with a set of core teachers on whom they could depend and opportunities for interdisciplinary teaching; the extent to which these opportunities were used varied across PYAP sites and the different Oakland academies.

Grouping participants in key classes is the scheduling characteristic that appears most critical to the effectiveness of a school-to-work program. Clustering students is vital to implementing an integrated curriculum in which academic courses reflect the program's occupational theme. Students scattered across different academic classes may participate in applied or contextual learning, in which instruction incorporates hands-on activities or practical exercises that are related generally to the world of work. For example, the off-the-shelf applied academic curricula available from the Center for Occupational Research and Development (CORD) use broadly defined occupational themes and examples from multiple technical industries. These curricula, however, do not focus on the school-to-work program's target occupation--the one of greatest interest to the student. Therefore, teachers must make a special effort to identify and incorporate relevant tasks and competencies into instruction. Because students have different career goals, tailoring applied academic curricula to a specific occupational area makes sense only if most students in

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[3]See the preliminary report for a more detailed description of the demonstration sites' implementation of alternative scheduling arrangements.

the classroom have an interest in that area. Thus, the curricula used in an ideal school-to-work program require clustering program participants for some part of the school day.

Almost all of the STW/Youth Apprenticeship Demonstration programs have incorporated some type of student grouping in their program designs. For the most part, students are grouped in a required vocational class or career development seminar, but not in academic courses. In some of these sites, students are clustered by definition--program participants are recruited directly from the vocational course--instead of as a conscious effort to foster special program-related curricula or activities. In many of these programs, vocational instruction consists of several hours of class or shop time in the morning or afternoon. Vocational courses are usually related specifically to the target occupation and form the core of the program. Alternatively, in programs with no defined occupational focus (for example, Workforce LA, Gwinnett, Scripps Ranch High School), students are likely to be grouped in a "co-op-like" career development seminar in which students learn general employability skills and reflect on their work-site experiences. Although school-to-work programs in which participants are grouped only in a single class do not experience the scheduling difficulties of those with more ambitious models for a core program curriculum, opportunities for curriculum integration and program-related activities are more limited.

Programs in which participants were clustered in several courses were most likely to introduce interdisciplinary teaching and occupationally relevant projects into students' school-based learning. These programs (which include OaklandWorks, the PYAPs, and ProTech Health Care) had both greater commitment to, and chances for changing, school curricula. Each of these programs required substantial administrative and teacher support simply to ensure that participants were clustered in the appropriate courses; this same support helped to promote development of school-to-work curricula.

Obtaining and maintaining support for student clustering is not easy, as reported by program staff members. School principals and teachers not involved in the program often resist requests to tamper with the master schedule. Until a school-to-work initiative is fully institutionalized as an ongoing program,

administrative staff members responsible for adjusting the master schedule need to be reminded each year to make these adjustments; even then, some students may wind up in different classes. Equally important, multiple-class clustering--often used in conjunction with block scheduling--can be resisted even by students, who associate the separateness with stigma. On the other hand, the school-within-a school approach to course scheduling can lead to a critical and affirming sense of group identity. Students in ProTech and the Oakland academies, for example, reported feeling "proud" to be part of those programs and to be involved in the special experiences they offered. Clearly, school-to-work planners need to consider a variety of factors before deciding to include clustering in the program design.

B. MODIFYING CURRICULUM CONTENT AND METHODOLOGY

The key to achieving school-to-work objectives may rest with school curricula. The curriculum reforms identified with school-to-work have the potential to better engage students' interests in learning (thus fostering stronger basic skills) and to improve career preparation. Much of the success of these reforms depends on how they are implemented, however. Several features of school-to-work curricula are likely to affect outcomes: (1) the extent to which there is a core curriculum or defined program of study for participants; (2) the relative emphasis on vocational-technical instruction; (3) how well academic and vocational education are integrated, and (4) whether employer input (for example, through the development of skill standards) was used to guide curriculum revisions. The demonstration programs differed substantially along each of these dimensions. We examine their implementation strategies next.

1. Core Curriculum and Programs of Study

DOL never identified the development of a core curriculum or program of study for school-to-work participants as a demonstration criterion. Nevertheless, it is an important concept about which each program made choices. The terms "core curriculum" and "program of study" characterize a defined sequence of courses formulated to achieve a career objective that may or may not include specific

postsecondary choices. Theoretically, identifying for participants a set of required courses that develop increasingly more advanced skills appropriate to a particular career area improves the likelihood of a smooth transition to postsecondary education or training and to employment. Planning and implementing programs of study--determining which courses form a coherent sequence, ensuring courses are scheduled at feasible times, and arranging for participants to have access to those courses--can be challenging.

The extent to which the demonstration programs featured planned programs of study varied significantly (see Table III.2). Not all of the programs had defined a core curriculum for participating students. The school-based component of many programs focused solely on the key vocational course, with no requirements for specific academic courses. In a few sites, although only the vocational course was required for program participants, program staff members encouraged students on an ad hoc basis to enroll in math or science courses appropriate to the target career. Other programs have a more structured sequence of courses specific to the program and its occupational focus. Sites implementing a school-within-a-school approach, including the Oakland academies, Craftsmanship 2000, and the PYAP sites, designate in advance the academic and occupational courses that will be included in the model. In the Seminole County/Siemens and Middle Georgia Aerospace programs, students are encouraged or required to enroll in the relevant Tech-Prep course sequences; these usually feature CORD applied academic curricula and the relevant vocational course.

The absence or existence of programs of study influences the extent to which the programs were able to affect one demonstration goal: maintaining high academic standards. Programs that identified specific academic courses in their core curricula had the potential to influence the rigor of students' academic course work. In some cases, program requirements probably encouraged students to take higher-level courses than they might have otherwise. For example, students in ProTech Health Care must continue to enroll in science courses as juniors and seniors, even though these courses are not required for high school

TABLE III.2

FEATURES OF SCHOOL-BASED CURRICULA
IN SCHOOL YEAR (SY) 1994-1995

Name of Grantee and Project	Core Curriculum	Vocational Courses	Applied Academics
Boston Private Industry Council			
ProTech Health Care (Health Care)	Specific science and English classes required	None	Attempts to make science and English more occupationally relevant Curriculum units developed by consultants and teachers Use of applied curricula varies across schools
ProTech Financial Services (Finance)	English and a business or computer class required	Computer or business Varies across schools	Attempts to make English classes more applied Use of applied curricula varies across schools
Craftsmanship 2000 (Metalworking)	Defined sequence of academic and technical courses, including postsecondary	New metalworking curriculum developed by industry partners Seniors can take hydraulics, electronics, welding, and computerized numerical control courses (not previously offered)	CORD curricula for applied math and physics Teachers developed applied English curriculum
Gwinnett Youth Apprenticeship Program (No Occupational Focus)	None	As desired by student No specific occupational focus	Some applied curricula available
Illinois State Board of Education (ISBE)			
Rockford (Metalworking)	None	Metalworking curriculum reviewed by industry partners Taught at special training facility donated by industry partner	Schoolwide attempts to make academic curricula broadly relevant to world of work Use of applied curricula varies across schools
Chicago (Metalworking)	Identified sequence of applied English and math and vocational courses	Metalworking curriculum reviewed by industry partners	Teachers developed applied academic units to be incorporated into math, English, and social studies classes Broad application to work and multiple industries

TABLE III.2 *(continued)*

Name of Grantee and Project	Core Curriculum	Vocational Courses	Applied Academics
Manufacturing Technology Partnership (Metalworking/Manufacturing)	None	Special vocational course developed to provide exposure to manufacturing trades Curriculum developed with input from General Motors and community college	CORD applied academic classes available at most home schools and at vocational center Students may take college preparatory classes instead of applied academic classes
Mechtech, Inc. (Metalworking/Machining)	None	Machine tool vocational course; printing vocational course	None
Middle Georgia Aerospace (Aerospace Technology)	Defined sequence of applied academic and vocational courses Varies across participating schools Options to replace applied academic courses with college preparatory courses	Blueprint reading, drafting, aerodynamics, and introduction to aircraft structural technology Junior-year vocational courses held at high schools; senior-year vocational courses offered at postsecondary technical institutes	CORD applied academic curricula available Students may take college preparatory classes instead of applied academic classes
Pennsylvania Youth Apprenticeship Program			
Lycoming (Metalworking)	Defined set of academic and vocational courses	Machine shop class for 2.5 hours each week for juniors Drafting class required for juniors, optional for seniors	Project-oriented approach to English, science, math, and social studies Classes have application to employment generally and to metalworking specifically
York (Metalworking)	Defined set of academic and vocational courses	Metalworking class	Project-oriented approach to English, science, math, and social studies Intensive focus on examples from metalworking and other manufacturing trades
Philadelphia (Metalworking)	Defined set of academic and vocational courses	Drafting, blueprint reading, and shop	Limited project-oriented approach to English, science, math, and social studies Intensive focus on examples from metalworking and other manufacturing trades

TABLE III.2 *(continued)*

Name of Grantee and Project	Core Curriculum	Vocational Courses	Applied Academics
OaklandWorks (Media, Computers, Law and Government, Health and Bioscience)	Two or three identified academic courses and a lab course from the academy sequence	Lab courses using computers to help teach occupational skills	Some attempts to make academic classes more relevant to academy occupational focus Extent of applied curricula varies across academies schools
Sears/Davea (Appliance Repair)	None	New appliance technology vocational program developed by Sears	None
Scripps Ranch High School (No Occupational Focus)	None	As desired by students	School-wide attempts to make acacemic curricula broadly relevant to world of work
Seminole County/Siemens (Electronics/ Telecommunicatons)	Tech-Prep electronics course sequence, options to replace applied academics courses with college preparatory courses	Electronics class	CORD applied curricula available Students may take college preparatory classes instead of applied academic classes
Toledo Private Industry Council (Industrial Automation and Robotics, Medical and Dental Assisting, Carpentry, Architecture and Drafting, Office Skills)	None	Vocational course relevant to program focus	Teachers develop applications to target occupation Sometimes team teach with vocational instructor
Workforce LA Youth Academies (No Occupational Focus)	None	One afternoon each week Little occupational focus Emphasizes job readiness and basic skills development	None

CORD = Center for Occupational Research and Development

graduation. Similarly, students in the PYAP sites take trigonometry as part of their course sequence; they might not have chosen that course in the absence of the program.

Some sites defined programs of study that relied heavily on commercially available applied academic or applied curricula developed by program teachers. The extent to which these courses challenged program participants is unclear and depends primarily on how they were implemented. CORD's Applied Math I is intended for ninth-grade students and includes estimated completion times for its projects, using it as a pre-Algebra course for juniors or significantly expanding the time allowed for projects may or may not be sacrificing some academic rigor, depending on the ability level of program participants. Teachers in several of the sites with program-designated academic courses reported that their classes offered the same level of challenge as other grade-appropriate courses. However, students who participated in focus group discussions often reported that they believed their applied academic courses were easier than those taken by nonparticipants. Some sites (for example, Seminole County/Siemens and Middle Georgia Aerospace) allowed, or even encouraged, motivated students to choose higher-level college preparatory courses instead of the recommended applied academic courses.

Because many of the programs did not have a core curriculum that included academic courses, participation in the program did not systematically affect students' choices of these subjects and their level of challenge. In a few programs, program staff members paid little attention to the academic course selection of participants; this was particularly true of programs with no specified occupational focus. In several programs, however, program staff members did recommend or encourage students to pursue particular academic courses that were considered vital for full understanding of the vocational curriculum (for example, trigonometry for students in the Rockford ISBE metalworking program) or for relevant postsecondary education and employment.

Programs of study are largely correlated with the clustering of students. Where grouping students in key courses is not feasible, school-to-work programs are less likely to be able to implement a core

curriculum or pathway. Moreover, programs of study may suffer from the same stigma attached to clustering of students. This problem is most likely to occur when programs of study are defined narrowly and the numbers of students following the pathways is small, accentuating the separateness of students involved in the program.

2. Emphasis on Vocational Instruction

According to the demonstration guidelines, technical instruction was considered an important but optional component of school-based learning. Demonstration programs were encouraged to help students develop occupational skills, but this process could take place either at school or at a work site.

The demonstration programs differ in how much they emphasize vocational education--both broad and specific technical skills training (see Table III.2). Several factors, starting with the target occupation, seem to influence these differences. Programs that focus on service industries were less likely to include vocational course work as part of the curriculum. Programs that focus on the trades (most of the demonstration programs) generally require participation in a specific vocational course that involves exposure to tools and equipment, hands-on technical training, and completion of special projects. This may partly reflect historical ties between manufacturing/machining firms and vocational education; industrial arts has long been a mainstay of vocational offerings, and firms in many communities have participated on vocational advisory committees or drawn entry-level workers from high school vocational programs. In contrast to employers in the service sector industries (for example, hospitals), for which relevant high school vocational offerings are more recent, employers in traditional trades sectors may be more familiar with the local vocational curriculum and may even have helped shape it. Therefore, they are more likely to rely on it for developing job-specific skills. In addition, service sector employers may be less concerned about students' acquiring occupational skills, since the competencies these firms value most are interpersonal and work ethic skills--skills that can be developed as part of academic curricula.

Emphasis on vocational education in the programs also seems related to the roles played by employer partners. Demonstration programs in which a single employer, or a small group of employers, participated heavily in the design of the program model generally included vocational education as a key program element. A reason for this may be that these employers are seeking a tangible return on their substantial initial and ongoing investment. Having students acquire job-specific skills prior to, or in addition to, their work-site experience potentially lowers the cost of training the students on the job and makes them productive more quickly. Because many of the programs targeting the trades are also the ones with early and significant employer participation, it is difficult to determine the relative merit of the two hypotheses. Also, employers interviewed by evaluation staff members generally reported similar reasons for their participation, regardless of industrial sector and participation levels.

It is unclear whether differences in programs' emphasis on vocational-technical course work are also related to other aspects of the programs. For example, the Workforce LA Youth Academies, ProTech Health Care, and (to some extent) OaklandWorks career academies enroll many students with basic skills deficiencies. The Youth Academies and ProTech Health Care have made improving the communication and math skills of participating students a priority; they view developing technical skills as less important.[4] Similarly, planners of the MTP metalworking program in Flint (which recruits women and students from racial and ethnic minority groups) reduced the amount and sophistication of hands-on technical skills training at the vocational center because of the need to devote time to improving students' math, reading, and writing competency. Thus, decisions about the relative emphasis a program places on vocational instruction may be based on participants' broader workforce preparation needs, as well as the entry-level requirements for the target occupation.

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[4]ProTech requires students to take a college readiness assessment at the end of junior year and encourages students with English or math deficiencies to enroll in college remedial courses during their senior year of high school. Workforce LA Youth Academies focus a portion of each weekly seminar on drills and exercises that develop basic skills.

3. Integration of Academic and Vocational Education

The integration of academic and vocational learning has become an important goal of education reform generally and the school-to-work movement specifically. These efforts have been supported nationwide by the 1990 Carl Perkins Vocational and Applied Technology Education Act and, more recently, by the STWOA. Attempts to link academic and vocational education have focused on modifying the content of curricula, on changing teaching methodology, or both.

Nearly all of the demonstration programs pursued integration to some extent, or built on earlier efforts to do so under Tech-Prep initiatives.[5] Integration strategies used by the demonstration program ranged from small efforts to ambitious reforms. The range of approaches falls into the eight integration models identified by researchers (Grubb et al. 1991). These efforts include:

- Incorporating more academic content in vocational courses (Sears/Davea, MTP)
- Using academic and vocational teachers to enhance academic content in vocational programs (Toledo, PYAP)
- Making academic courses more vocationally relevant (Seminole County/Siemens, Middle Georgia Aerospace, Toledo, Rockford and Chicago ISBE, ProTech, Craftsmanship 2000, PYAP)
- Completely aligning and coordinating academic and vocational curricula (PYAP, Craftsmanship 2000)
- Offering special cross-disciplinary projects with an occupational theme (PYAP, ProTech, OaklandWorks, Toledo, Chicago ISBE)
- Providing academy models (OaklandWorks)
- Providing occupational high schools and magnet schools (OaklandWorks, PYAP, Craftsmanship 2000)
- Offering clusters, career paths, and programs developed around career majors (ProTech)

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[5]MechTech, Inc., Workforce LA, Gwinnett, and Scripps Ranch High School did not emphasize integration in their program designs or implementation efforts.

The most frequent strategy for integrating academic and vocational education was the development or purchase of curricula that enhance the occupational context and (sometimes) the instructional approach of academic courses. In several sites, the introduction of applied academics preceded the school-to-work program, generally as part of a Tech-Prep initiative. Some applied academic curricula, however, were developed specifically for the program by program staff members or consultants. Some curricula were purchased commercially for program use.

The extent to which school-to-work curricula are "applied" to a program's target occupation varies significantly. Several programs rely on well-known commercial products, like Applied Math, Principles of Technology, or Applied Communication. These prepared packages feature hands-on laboratory activities for students to demonstrate theoretical concepts, as well as special videos to draw students' attention to the real-world applications of the concepts taught. The curricula do not focus on a particular occupation, however, but use examples from a wide range of industries. Teachers must make special efforts to emphasize the program's target occupation; this is normally done only if program participants are clustered in these applied courses.

Applied academic curricula developed specifically for use in the demonstration programs have tended to be more occupationally relevant. The best example may be the integrated program curriculum developed for the PYAP metalworking program.[6] In the three PYAP sites visited, English, math, science, and social studies class work was structured, to varying degrees, around a metalworking theme and job skills. PYAP teachers reported that math and science curricula were easier to link to vocational course work ("shop") and to metalworking than were English and social studies. Teachers have been quite creative, however. For example, in contrast to the regular English classes (which place greater emphasis on literature), the Lycoming PYAP English course focuses on writing, communication, and problem

[6]Although a set of curricula was developed for use in all PYAP sites, how and to what extent these materials are used vary considerably.

solving, using metalworking and technology as key themes. Among the assignments students received were reading the writings of Henry David Thoreau--focusing on Thoreau's philosophy of work--and Daniel Boorstin (an essay, "The Republic of Technology"). For another assignment, the English teacher gave students Legos (a form of building blocks), asked them to build something with the Legos, and then asked them to write how-to instructions for recreating the assembled project. Other demonstration programs have developed applied academic curricula that relate to occupations generally, but that are less intensive in their focus on a specific industry or trade.

One important lesson from the demonstration experience is that, despite the creativity of curriculum developers and site teachers, academic curricula can have too much of an occupational focus. Students in the Philadelphia program, for example, reported that the intensive focus on manufacturing trades was boring. They were concerned that the applied curricula prevented them from getting the broad education that their peers were offered and expressed an interest in learning grammar and literature.

Although incorporating project-oriented and thematic instruction into academic curricula was the most common approach to integrating academic and vocational education, two programs attempted to modify vocational curriculum to emphasize and improve academic skills. In developing the Repair Technology curriculum, Sears technical trainers felt that successful repair technicians need both mechanical aptitude (to take apart and reassemble equipment) and a solid conceptual understanding of technological principles (to be able to diagnose problems). To build this conceptual base, the curriculum developers incorporated into lab exercises the application of scientific and math principles that were more advanced than those in many other vocational curricula. Similarly, well into the second year of operations, MTP vocational staff and employers determined that participating students' greatest needs were basic and general employability skills. They modified the vocational curriculum to emphasize reading, math, and communication skills, instead of occupational skills only.

The most ambitious demonstration efforts to reform curricula involve changes in instructional methods as well as content. Research in cognitive science suggests that students learn best not only when the concepts taught are applied to real life and the world of work, but when students are fully engaged in hands-on problem-solving activities and exercises. Hands-on, contextual, cooperative, and project-oriented learning, as well as competency-based instruction--all reforms of traditional teaching techniques--were not explicitly cited as key elements of the demonstration model. However, they are fundamentally related to efforts to integrate academic and vocational education.

These instructional methods have been introduced, to varying degrees, in the demonstration programs. Program staff members provided many examples of interdisciplinary projects that engaged students in group learning and problem solving. Some of these projects related to the program's occupational theme; others did not. How much these projects represent a complete reform of school-based learning is unclear, however. In many of the sites, group projects and lessons involving integration were developed and/or introduced completely at the discretion of key teachers, who were simultaneously trying to cover traditional course material prescribed by school or state officials. Although these staff members may have had lesson plans for integration activities at their disposal, their use of these plans and projects was usually intermittent.

After observing programs' curriculum development and implementation over a period of several years, it seems clear that the time and commitment of teachers are the critical elements for successful implementation of contextual learning strategies. Teachers accustomed to teaching with textbooks need time to develop and become comfortable with new ways to structure assignments and convey concepts. In the first year of a school-to-work program, hands-on projects may be incorporated in a more traditional course in an ad hoc manner; the following year, these activities and tasks become a set part of the curriculum if successful. It is not until at least the second year that activities and instruction methods are written in lesson plans and teachers' guides.

The success of these learning strategies also depends on teachers' creativity. Few teachers in the school-to-work programs, except those in the PYAP and ProTech Health Care sites, have had the luxury of specialists to help design hands-on, occupationally relevant curricula. Even in these two programs, teachers have been developing new tasks and assignments to tailor the curricula to the constraints of their facilities and the needs and interests of individual students. In all programs with teachers who were trying to implement applied curricula through nontraditional instructional methods, teachers reported continual development and fine-tuning of the curriculum content and teaching approach.

Because contextual learning techniques require more experimentation, creativity, and responsiveness than traditional learning techniques from teachers, applied academic curricula that call for these techniques are viewed as harder to teach than other courses. Teachers reported that applied courses require more work, especially in the early years of implementation. The effort required to develop and implement contextual learning can be viewed negatively or positively. In Toledo, teachers considered the applied courses as least appealing because of the work involved. These courses were the last selected by teachers and were assigned to those with the least experience. On the other hand, when the Scripps Ranch High School was recruiting teachers, the administration's commitment to the idea of hands-on instruction and project-based learning helped to attract applicants.

The appeal of these teaching methods over more traditional lecture, textbook, and multiple-choice instruction is evident. Students in the focus groups reported that they enjoy working in teams and solving problems as part of groups, because these activities make the subject lessons more interesting. For example, students in the Lycoming PYAP site said that having a math class that has no textbook, but that gives students real problems to solve instead, helps them "learn a lot better" and remember things longer; in contrast, math at their home schools used to be a "sleep class." Students in the Chicago ISBE program reported that "homework is not so much of a drag" and that in school classes some "projects are more interesting."

4. Use of Skill Standards and Other Employer Input to Guide School-Based Learning

Collaboration between educators and employers is a key element of school-to-work reforms. One guideline issued to demonstration programs was that employers participate in the development of school curricula, as well as workplace training plans. Although no particular form of collaboration was specified, over the course of the demonstration period the term "skill standards" was increasingly used in discussions concerning curricula and competencies. Skill standards, as defined by the Hospitality and Tourism Skills Board--a group awarded a federal contract to develop voluntary, national skills standards for that industry--are " the level of performance necessary to be successful on the job. Components of the standards are the steps involved in completing critical tasks; tools and equipment used; description of possible problems and their responses; and the knowledge, skills and abilities elemental to completing these tasks" (Hospitality and Tourism Skills Board and Council on Hotel, Restaurant and Institutional Education 1995).

The extent to which the demonstration programs sought and obtained employer input into school curricula varied significantly. Most of the programs with a focus on vocational-technical curricula benefited from substantial employer participation in the development and/or review of course competencies and materials. Sears curriculum writers spent approximately two and one half full-time-equivalent staff years developing the new appliance repair curriculum. Firms participating in the Rockford ISBE, Craftsmanship 2000, Middle Georgia Aerospace, and PYAP programs also contributed significantly to the preparation and refinement of key vocational courses. In many of these sites, employers, program staff members, and vocational instructors jointly developed what they termed "task lists," "training plans," or "skill checklists," which delineated the competencies students were expected to master during their tenure in the program. In a few sites, these competency lists were expected to be used by vocational instructors as well as work-site supervisors, both to guide what students learned and to assess their new skills. Although the preparation of these lists or training plans often was time-consuming, program staff members

generally reported that the lists were a useful and tangible product of the collaboration and that employers appreciated being included in the process.[7]

Employers contributed most heavily to vocational curricula; they did have an impact on other curricula in some sites, however. ProTech English and science teachers developed applied and integrated lessons for use in the classroom by visiting employer sites, observing staff in different functions, and identifying relevant competencies and tasks required for those functions. The curriculum for the advisory period in Scripps Ranch High School included input from a committee of teachers and employers as it evolved. Employers participating in the Middle Georgia Aerospace program helped to develop specific, aerospace-related applied academic exercises and projects based on commercial curricula.

C. SECONDARY SCHOOL PERFORMANCE

The purpose of school-to-work programs is not only to improve students' employment prospects at the end of the overall program, but also to enhance student outcomes along the way that are likely to be associated with later success. Data on individual student experiences collected from the programs allow us to examine some intermediate measures of performance, including school achievement.

These data suggest that, overall, students continued to perform well in school while they participated in the school-to-work programs. Those enrolled in the demonstration programs were "average" students, as discussed earlier in Chapter II. They generally entered the programs with relatively high attendance rates and grade point averages (GPAs), reflecting to some extent the programs' attempts to screen applicants for good attendance and grades as a requirement for selection. In most sites, these high attendance rates were maintained once students enrolled in the programs (Table III.3). The only exceptions were in the Chicago ISBE and OaklandWorks sites, both of these programs enroll relatively high proportions of disadvantaged students, whose attendance rates generally vary more significantly than those

[7]The discussion on work-based learning included in Chapter IV contains more details on the training plans and skill checklists.

TABLE III.3

SECONDARY SCHOOL PERFORMANCE
(Fall 1992 Cohort)

Program	Number of Students in Cohort	Average Attendance Rates (Percentage)			Average GPA		
		Preprogram	First Year	Second Year	Preprogram	First Year	Second Year
ProTech Health Care	85	92.5	90.9	NA	2.5	2.4	NA
Craftsmanship 2000	17	95.1	97.6	91.1	2.6	3.0	2.8
Gwinnett Youth Apprenticeship Program*	52	93.0	94.2	NA	2.9	3.0	NA
Rockford ISBE	15	98.4	97.7	98.3	2.4	2.4	2.9
Chicago ISBE	26	95.3	89.7	84.7	2.2	2.2	2.3
Manufacturing Technology Partnership	50	97.6	97.6	NA	2.8	2.8	3.4
Middle Georgia Aerospace*	39	96.0	95.9	94.6	2.6	2.6	2.8
Pennsylvania Youth Apprenticeship Program							
Lycoming	12	94.7	96.7	96.5	2.7	3.2	2.9
Montgomery	14	90.9	95.5	92.3	2.3	2.8	3.3
Philadelphia	10	85.1	91.4	94.4	1.6	2.6	2.4
Pittsburgh	11	NA	90.0	94.0	2.0	1.9	2.4
York	20	95.0	94.9	92.8	2.0	2.3	2.2
OaklandWorks	282	88.3	83.6	79.1	2.4	2.3	2.1
Scripps Ranch High School*	88	97.4	96.9	97.7	3.3	3.3	3.5
Seminole County/Siemens	21	96.0	95.1	97.6	3.1	NA	NA
Toledo Private Industry Council	7	89.2	91.9	86.3	2.0	1.9	2.4

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Fall 1993 cohort data reported for Gwinnett, Middle Georgia Aerospace, and Scripps Ranch High School.

GPA = grade point average; NA = not available.

of other students.[8] Similarly, average preprogram GPA was maintained or increased once students entered the demonstration programs. In several sites (the Lycoming, Montgomery, and York PYAPs, and Craftsmanship 2000), the increases in GPA observed in the first year of participation were statistically significant. However, because on average GPA may be higher for seniors than for juniors, we cannot interpret these increases as being due to the school-to-work programs.

D. ISSUES AFFECTING THE DEVELOPMENT OF SCHOOL-BASED LEARNING

The task of modifying school curricula to reflect school-to-work reforms is challenging. The experience of the demonstration sites suggests the following conclusions about the factors and issues that can influence the success of these efforts:

- ***Students are enthusiastic about project-oriented learning.*** The appeal of contextual learning strategies over more traditional lecture, textbook, and multiple-choice instruction is evident in students' reports. Students cite working in teams, solving problems in groups, and hands-on lab or building activities as among their more enjoyable and interesting school-based exercises.

- ***Clustering students in key courses greatly facilitates integration of academic and vocational education.*** Grouping students by occupational interest allows teachers to incorporate thematic and contextual learning activities that are more relevant and interesting to individual students into classroom instruction. Clustering may actually be more feasible for some programs as school-to-work reforms expand. It is more cost-effective to group students in academic classes by interest in broad categories of careers instead of by specific occupations. The number of students interested in any particular occupation in a single school is likely to be limited, making it difficult to dedicate a teacher and course period to those few students. Grouping larger numbers of students with similar interests and school-to-work participation in related occupations is easier to accomplish and financially more viable.

- ***The definition of a core curriculum for school-to-work participation can raise the level of rigor of students' course work.*** The terms "core curriculum" and "program of study" characterize a defined sequence of courses formulated to achieve a career objective that may or may not include specific postsecondary choices. These sequences can be designed to include higher-level math or science courses, with a paid workplace experience conditional on and acting as incentive for students to succeed in these more challenging courses.

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[8]For these comparisons we computed the average change in attendance and GPA from the preprogram year for participants with data in both years. A two-tail, 95 percent confidence level was used to determine if the differences were statistically significant.

Expanding this approach in a broader school-to-work system may be difficult, however. The strategy may be effective for students in the upper or middle part of the academic distribution, raising expectations of them and challenging them to take more rigorous courses. It is less clear in the short run, however, how more challenging programs of study will affect lower-achieving students. Some students (for example, those with basic skills deficiencies) may be unable to pass the courses that are prerequisite to more advanced ones in the sequence and may be excluded from participating in intensive workplace activities.

- ***The success of new curricular methods depends on careful selection of teachers, at least initially.*** Much of the success of the curriculum reforms associated with school-to-work initiatives requires significant creativity and responsiveness by teachers. Early school-to-work programs are able to single out or specifically recruit teachers with these qualities. Specialized recruitment or assignment of teachers will become infeasible as school-to-work reforms broaden, however. More, and perhaps all, teachers will need to understand and adapt to the new instructional approaches. Some teachers are resistant to changing teaching strategies. Although the new legislation recognizes that staff development may be necessary to help school personnel learn new techniques, rapid skill transformation of large numbers of teachers will remain a challenge for school-to-work initiatives.

- ***Obtaining employer input into curriculum revisions is not difficult, particularly if employers are making other significant investments in the school-to-work program.*** Employers are often willing to devote staff time and resources to review or help develop school curricula as part of school-to-work programs. This contribution is even more likely and substantial when the firms are also providing paid workplace positions for students and/or expect that program graduates will be candidates for permanent employment. Firms making these investments see themselves as having a direct interest in shaping the school curricula, particularly relevant vocational courses that can be designed to provide both general and specific skills and to prepare students for immediate productive tasks at the work site. Despite the priority most employers place on basic, problem-solving, and communication skills, they are likely to contribute less to the development of academic curricula. This outcome is partly because firms are less familiar and comfortable with the process of identifying general competencies and developing activities that address them.

IV. DEVELOPING WORKPLACE OPPORTUNITIES FOR STUDENTS

Work-based learning is a key component of the school-to-work model. Work-based learning activities are intended to help students refine their career interests through exposure to one or more industries, provide them with appropriate and marketable skills, help them become familiar with the culture of work, and demonstrate the relevance of and need for basic and higher-level academic skills. They also aim to motivate and engage students who may be disenchanted with high schools' emphasis on college preparation.

Although work-based learning has come to encompass a variety of kinds of activities, the youth apprenticeship model and the U.S. Department of Labor (DOL) demonstration guidelines focused on a relatively specific definition. The demonstration programs were encouraged to design their work component to provide students with unsubsidized, paid work experience under the supervision of a job coach or mentor, and to include a formalized sequence of training that leads to progressively higher skills and pay. These workplace experiences were to be linked to school-based activities and organized with input from both school and employer staff members. The recent federal legislation retained much of this early vision for the "work" part of school-to-work.[1]

In practice, the demonstration programs vary substantially in the extent to which they have achieved the defined structure for work-site experiences available to participating students. The work-site component of the programs--as planned and implemented--differs widely in the time students spend at the work site, whether they are paid, the relative emphasis on work experience, skill training, or other objectives, and the roles of work-site staff members. These variations are due to the difficulty some sites

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[1]Some differences exist, however. For example, under the School-to-Work Opportunities Act (STWOA), allowable work-based learning activities may include short-term job shadowing or "simulated" workplace experiences (such as participation in school-based enterprises).

experience in recruiting employers, unavoidable constraints participating employers and program managers face, and conscious decisions about program objectives.

This chapter discusses the demonstration programs' approaches to developing workplace experiences for participating students and the factors that influence them. First, we examine the challenges of recruiting employers to provide work-based opportunities for students (Section A). We then describe how students are placed at work sites (Section B). In Section C, we review in detail the types and scope of workplace activities available to the demonstration participants. In Section D, we discuss the use of training plans and the extent to which skill standards guide and shape what students do and learn at the workplace. We then describe the role of work-site staff members (Section E). Finally, we summarize the issues that can affect the development and success of work-based learning (Section F).

A. EFFORTS TO RECRUIT EMPLOYERS

Recruitment of employers has been a major challenge for school-to-work programs. In many communities, firms and corporations have been involved with high schools in some capacity (for example, through adopt-a-school programs or cooperative education). School-to-work programs, however, generally require a more intense commitment from employers. Most of the demonstration sites find it difficult to recruit employers who are willing to provide students with the type of paid, ongoing work-site positions specified by the demonstration guidelines.[2] In this section, we discuss how the type of program partner responsible for recruiting employers can affect recruiting success and the strategies for obtaining employer participation used by the demonstration programs.

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[2]Not all of the demonstration programs attempted to recruit employers. Both the Middle Georgia Aerospace program and the Seminole County/Siemens program were initiated by employers and did not seek the involvement of additional firms beyond those originally committed to the partnership.

1. Recruiting Responsibility

The success of employer recruitment is influenced by several factors, including which partner or partners have primary responsibility for the task. In many of the demonstration programs, employer recruitment is ostensibly a shared responsibility; generally, however, one partner takes the lead (see Table IV.1).

Common sense and the demonstration experience suggest that some partners are more successful in leading the recruitment effort. When a business or trade association (such as a chamber of commerce or private industry council) is involved in the school-to-work program, this group always leads the effort to encourage employer participation. In some cases, these third parties were sought as partners specifically to play this role. Relying on these groups to recruit employers is logical. Organizations such as the chambers or private industry councils have firms as members and have access to other local businesses. Moreover, these organizations have a broad mission similar to that of school-to-work--workforce development generally--and administrative resources that can be used to support this mission. Programs in which trade associations are responsible for employer recruitment are generally most successful because of these connections and resources.

In a few sites, individual employers took the lead or participated in recruiting additional firms for the program. Often, however, these efforts were either supported by a trade association (for example, the Illinois Manufacturing Association in the Rockford Illinois State Board of Education [ISBE] program) or quickly led to the involvement of a similar group (the Tulsa Chamber of Commerce in the Craftsmanship 2000 program). Less frequently did a single employer take responsibility and expend resources on an ongoing basis to solicit support and involvement from other individual firms.

Individual schools and school districts experience the greatest problems in recruiting employer partners. Without the network of business connections readily available to trade associations or individual

TABLE IV.1

ENTITIES RESPONSIBLE FOR RECRUITING WORK-SITE PLACEMENTS

Grantee Name/Project Name	Schools				Students	Employer(s)	Private Industry Council	Business Association[a]	State Agency	Other Organizations
	Comprehensive High Schools	Vocational	District	Community College						
ProTech						X	X•			
Craftsmanship 2000						X		X•		
Illinois State Board of Education										
Chicago	X•									X[b]
Rockford								X•	X	
Gwinnett Youth Apprenticeship Program	X•		X		X					
Manufacturing Technology Partnership		X•				X[b]				
MechTech, Inc.								X•		
Middle Georgia Aerospace						X•				
Sears/Davea								X[c]•		
Pennsylvania Youth Apprenticeship Program										
Lycoming									X	
Philadelphia			X							
York		X							X	
OaklandWorks	X		X•							
Scripps Ranch High School	X							X•		
Seminole County/Siemens			X			X•				
Toledo Private Industry Council	X						X•			
Workforce LA Youth Academies			X•							X

[a]Includes Chamber of Commerce, National Alliance of Business, and other organizations that include business and corporations as members.

[b]Community-based organization.

[c]National Alliance of Business.

•Primary responsibility.

firms, schools have more difficulty identifying potential employer partners, determining effective marketing approaches, and allocating necessary staff resources to this task.

These lessons about recruiting responsibility do not hold true all the time, however, because other factors affect employer participation. Staff members at the vocational center that is the headquarters of the Manufacturing Technology Partnership (MTP) have been able to obtain commitments from many small firms because they are given sufficient time to make and follow up on personal contacts. Offering subsidized wages also helps in recruiting employers. The Oakland Unified School District and the four OaklandWorks high schools responsible for recruiting short-term summer and spring internship positions for academy participants have been successful largely because employers are being offered free labor. The Pennsylvania Youth Apprenticeship Program (PYAP) sites had difficulty recruiting employers in the beginning, even though employer contacts were coordinated by regional agencies whose purpose is to work closely with the small-business community.

2. Recruiting Strategies

The demonstration programs adopted a variety of approaches to recruiting employers to provide workplace experiences for students. Which strategy or set of strategies was selected appeared to depend on the availability and willingness of different partners, type of student workplace activity being sought, resources available for recruitment, and extent of preexisting business relationships. The approaches fall into four main categories (although there is some overlap among them):

1. ***Relying on Third-Party Partners.*** As discussed earlier, chambers of commerce, private industry councils, trade associations, and other groups of businesses have proved useful in gathering support from local firms for school-to-work participation. Staff members from these third parties have made personal contacts with employers, conducted mass mailings, or organized special meetings or other events on behalf of the school-to-work program. For example, the first event organized for Scripps Ranch High School by the San Diego Chamber of Commerce's Business Roundtable for Education brought representatives from more than 50 area businesses to meet with key school administrators and teachers; about 30 firms helped to sponsor a job-shadowing day for the entire sophomore class in November 1994, and more have participated as classroom speakers. ProTech, Craftsmanship 2000, and the Sears/

Davea, Rockford ISBE, and Toledo Private Industry Council programs also relied on business organizations to help recruit employers. School-to-work programs that fail to establish connections with these groups may be at a disadvantage, particularly when they seek to expand beyond their initial set of employer partners. These organizations already have access to employers and are often willing to take on recruiting tasks wholly or partially at their own expense instead of out of grant funds.

2. ***Person-to-Person Contact.*** Many sites, as either their primary strategy or one of several, work to make contact with individual employers. Program staff members approach employers through telephone calls, personal letters, visits, and/or mass mailings, in which they must first explain the program and then solicit the firms' support. This process can be extremely resource-intensive, particularly for programs that rely on small companies to provide student work-site positions. Identifying potential candidates can also be difficult, although most programs that rely on personal contact hire or designate employer-recruiting staff members who have previous experience or contacts in the industry. Staff members from demonstration programs that use this approach (for example, the PYAP sites) estimate that, on average, only about one-quarter of all employers contacted agree to participate in the program.

3. ***Employer Leverage.*** According to some of the demonstration programs, large, well-known companies can help to recruit other employers. This can be done through peer pressure--a few hospitals in ProTech used this approach to encourage other Boston hospitals to participate--or if the large company has some leverage over other local firms. The latter approach was adopted to some extent in both the Toledo Private Industry Council and Flint MTP programs. In Toledo, representatives from the Caterpillar Corporation contacted its local suppliers and other subcontractors to find workplace positions for the Toledo students. Similarly, staff familiar with MTP from the original participating General Motors (GM) plant recruited from among the other GM plants in the area. The success of this strategy suggests that it may be useful for school-to-work programs to first try to recruit a large, well-respected firm, and that program staff should make every effort to involve a large firm's staff in recruiting other employers.

4. ***Student-Initiated Contacts.*** Some school-to-work programs encourage or allow students to find their own, appropriate workplace positions. The Gwinnett Youth Apprenticeship Program relied partly on this strategy, much as traditional cooperative education programs do. About half the participating students found their own jobs; program staff members then evaluated the jobs to determine their suitability.[3] This approach both limited employer recruiting costs incurred by the program and expanded the network of known employers willing to hire high school students. On the other hand, because participating firms were not recruited through a central process, they were not closely linked to school activities and there was little sense of participating in a collaborative effort.

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[3]Ostensibly, the evaluation by program staff was intended to confirm that the position was related to the student's identified career interest, provided wages, and involved at least five hours of work experience each week.

Using these strategies, the sites were generally able to expand the number of participating employers. Despite high rates of refusal and the substantial resources required to recruit employers, most of the demonstration programs obtained a commitment for positions from more firms over subsequent years of program operations (see Table IV.2).[4] This expansion was necessary. Many employers are willing to sponsor only one or two students at a time. Because most of the programs involve students in at least two years of work experience, some employers can only be assigned new students every other year instead of every year. If the program fills the available employer slots with students in a given year, staff members need to recruit new employers for students entering the following year. Large employers, such as the hospitals and financial companies participating in ProTech, GM in the MTP, and Siemens, were willing to sponsor greater numbers of students, including new cohorts of students each year, while keeping the positions of students from the previous year(s).[5]

The demonstration program's experience and success in recruiting employers were the result of some practices undertaken after much experimenting. These practices or "lessons learned" include:

- ***Guarantee employer input.*** For some programs, employers are asked to participate in identifying competencies, developing training plans, and recruiting and selecting students, in addition to providing students with workplace positions. In most programs, these other roles are not conditions of participation but rather employer recruiting inducements to encourage employers to feel "ownership" in the program and to ensure the program meets employers' needs. Although this was not true at the start, most programs now have students interview with prospective employers, allowing employers to select those students they want to sponsor. Representatives from the Craftsmanship 2000 sponsoring firms spent almost two years

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[4]Table IV.2 shows employer participation for only those sites in which student workplace experiences begin relatively soon after enrollment and last more than a single semester or summer. Some demonstration programs that are not included in Table IV.2, such as OaklandWorks, Craftsmanship 2000, the Rockford ISBE program, and Scripps Ranch High School, also reported increasing the number of employers providing workplace activities for students; the student data to support these reports are not available, however.

[5]The substantial drop in the average number of students per employer in the MTP program (illustrated in Table IV.2) is due to the program's success in the second and third years of operation in recruiting small firms to join GM in hiring students. The small firms each hired only one or two students, lowering the average substantially after the first year.

TABLE IV.2

PARTICIPATION OF EMPLOYERS IN SELECTED DEMONSTRATION SITES[a]

Grantee Name/Project Name	Period of Data Collection	Number of Employers Providing Ongoing Work-Site Positions		Average Number of Students Per Employer	
		First Year	Cumulative Across Data Collection Period	First Year	Cumulative Across Data Collection Period
Boston Private Industry Council					
ProTech Health Care[b]	Fall 1991-Spring 1995	9	24	9.4	11.4
ProTech Financial Services	Fall 1993-Spring 1995	7	8	7.7	10.3
Gwinnett Youth Apprenticeship Program	Fall 1993-Spring 1995	40	66	1.1	1.2
Manufacturing Technology Partnership	Fall 1992-Spring 1995	1	11	50	11.5
Pennsylvania Youth Apprenticeship Program					
Lycoming	Fall 1991-Spring 1995	7	23	2	2.4
York	Fall 1992-Spring 1995	13	24	1.4	1.6
Philadelphia	Fall 1992-Spring 1995	8	22	1.3	1.2
Seminole County/Siemens	Fall 1992-Spring 1995	1	1	21	61
Toledo Private Industry Council	Spring 1993-Spring 1995	6	22	1.2	1.4

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] This table is based on student management information system data submitted by the demonstration sites and includes only the sites in which students were provided paid, ongoing workplace positions that begin soon after program enrollment. The figures presented reflect only the participation of employers with students in workplace positions; they do not take into account firms involved in the demonstration programs in other ways.

[b] Approximately 10 students in ProTech Health Care worked in unrelated positions in firms other than the participating hospitals. When these student positions are excluded from the calculations, the number of employers decreases and the average number of students per employer in both the first year and cumulatively increases, because the unrelated firms generally hired only 1 ProTech student each, while the hospitals sponsored groups of 5 to 30 ProTech students.

meeting to develop the competency lists and curriculum plans for the school- and work-based components of the program, to ensure that student participants would have the skills desired by the firms investing heavily in their training. GM was able to tailor the MTP--identifying the target population, the skills emphasized, and the program goals-- to meet its specific needs for minority and female apprentices; the addition of new small firms as program partners has led to a two-tiered student selection system to allow both GM and the smaller firms to meet their needs.

- ***Start with existing employer relationships.*** Although this seems obvious, not all programs pursued this strategy. In a few sites, there was competition between the school-to-work program and the traditional cooperative education program, and demonstration staff members felt they could not contact co-op employers. Most of the sites, however, regardless of the recruiting strategy used, relied on previous employer connections. The Gwinnett program expanded from its co-op network, and ProTech and OaklandWorks relied heavily on employers who had participated in summer youth employment programs in the past.

- ***Develop attractive, informative explanatory materials and brochures.*** Successfully recruiting employers often requires several contacts by program staff members. Recruiters must explain what the program is and how it works, convince employers that it is or can be designed to meet their needs, and address employer concerns (which usually relate to the employer's obligation, liability issues, and the program's target population). Not all of these topics can be adequately covered in a single telephone call or meeting. Staff members from several demonstration programs reported the advantages of having written material containing all of the relevant information under a heading such as "Questions Employers Frequently Ask." For example, the MTP staff member responsible for recruiting new employers reported that being able to leave explanatory material with employers reduces the amount of time he needs to spend with each one; follow-up visits or telephone calls can focus on specific questions on which the employer's participation hinges instead of on those of a more general nature. Although most of the demonstration programs did develop material for distribution that provided some information, much of it was for general promotional purposes.

- ***Centralize regional or communitywide recruiting efforts.*** Expansion of school-to-work initiatives can create competition for employer commitments and lead to problems unless employer recruitment efforts are coordinated. As additional schools in a community begin school-to-work programs, demands on the existing pool of local employers can become burdensome and disruptive to the business climate, particularly for large companies that many schools may target. Program staff members in the MTP sites and York and Lycoming PYAPs expressed concern that employers are becoming confused with the various work-based learning programs in their communities. Moreover, staff fear that employers may react negatively to what they perceive as constant solicitation by a single program (even though it may be requests from different schools for different programs) or as a symptom of a disorganized bureaucracy creating several similar programs. To head off these potential problems, the chamber of commerce in San Diego (which is assisting Scripps Ranch High School and the countywide expansion of school-to-work) is considering developing a school-based, workplace management information system. This system would document employer commitments, available slots, and current student assignments to work sites, thus preventing excess demands on individual employers. For similar reasons, Oakland Unified School

District staff recently assumed central responsibility for recruiting and coordinating summer workplace positions for students in individual high schools.

Despite the employer support obtained by many of the demonstration programs, not all programs were as successful as desired. Many of the programs were not able to find paid, ongoing workplace positions for all current participants or for the full complement of students expected the next year. The Chicago ISBE metalworking program, for example, was able to obtain part-time positions for only 3 of the 40 participants in school year 1994-1995. The Toledo Private Industry Council program selects students from several vocational programs to fill workplace positions but is restricted by the number of willing employers. Craftsmanship 2000 made significant changes in the commitment employers must make to sponsor a student--lowering the stipend paid to each student from $54,000 over four years to $30,000 over four years--and still has had difficulty recruiting enough sponsors. Expansion of many of the demonstration programs is still likely to be limited by the availability of workplace positions.

B. STUDENT PLACEMENT AT WORK SITES

In assigning students to sites for their work-based learning activities, school-to-work programs must reconcile the preferences of and satisfy both participating students and employers. Failure to achieve these goals could have long-term consequences for the programs. Placing students at work sites they find unappealing may affect students' motivation and work performance, and could lead to early exits from the program. These outcomes--both poor student performance and early exits--could, in turn, reduce employers' commitment to the program. Moreover, employers generally want some control in choosing students for their workplaces, particularly when they are paying for the students' training and/or work experience; lack of input could result in employer dissatisfaction.

There are essentially three student placement approaches, each of which was used by a subset of the demonstration programs. First, in some school-to-work programs, only one employer option exists for work-based learning positions. For example, in the Seminole County/Siemens program there is a single

employer, and in the Middle Georgia Aerospace program each participating school is partnered with a particular employer. Thus, student placement at work sites is not an issue in these programs. Instead, student recruitment and selection into the program become important, and (as mentioned in Chapter II) employers in these programs are active in the recruiting and selection process.

School-to-work programs that have more than one potential work site (as most do) can choose to have central program staff members match students and employers. Program staff members act as a screen, filtering requests and preferences from both sides and assessing students' abilities, and determine the best assignment on the basis of specified criteria. This second approach is most common when the workplace activity to which students are being assigned is unpaid and/or of short duration, such as job shadowing. In these situations, employers are making only a limited investment and therefore do not require direct input into students work-site assignments. There are exceptions, however. School staff members in the Rockford ISBE program and program teachers and mentors participating in Craftsmanship 2000 match students and employers. In both sites, employers have limited input into the assignment, even though they have pledged to pay for students' summer and school year workplace experiences.

Proximity of the work-site location to students' home or school is one important criterion that program staff members may use when making assignments. Transportation remains a barrier for students in some of the demonstration programs. Some students do not yet have driver's licenses or access to cars, some communities lack public transportation, and employer work sites (particularly large manufacturing plants or industrial facilities) are often located relatively far from a municipal or town center. Parents and program staff members often prefer that students not have to commute long distances in the evening after work, and program staff members usually try to minimize commuting time from school to work sites so that students can spend more time at the work sites. Program staff members may try to facilitate carpooling by assigning the same or nearby work sites to students who live close to each other.

A third approach to placing students is to allow some combination of student and employer self-selection. This approach is slightly more complicated, but more inclusive, than the first two. Most of the demonstration programs in which students are paid for ongoing work experience and training use a two-tiered sorting approach--either students narrow down the choice and then employers make the final selection, or vice versa. In the Philadelphia PYAP program, the project coordinator gives the students information about each of the participating companies, and the students identify the companies with which they would like to interview. To ensure that each company has a pool of students to draw from, the project coordinator restricts each company's hiring pool to three or four students. Thus, like adult job seekers, students are not guaranteed their first choice. Many programs impose some restrictions on the sorting process. The York PYAP program restricts the students' work placement search to the companies near their homes. Flint's MTP program allows GM to make its selection of students first, although students may turn down GM's offer to be able to take a position at one of the other MTP firms.

In many of the demonstration programs, the employers use the same hiring process for students as they use for their regular adult employees. Thus, some employers administer their own assessment tests, and most interview program participants before selecting and hiring them. Most of the demonstration programs prepare students for employer selection by providing them with instructions on how to apply for a job and how to conduct themselves in a job interview.

C. TYPES AND SCOPE OF AVAILABLE WORK-SITE ACTIVITIES

The characteristics of the work-site activities in which school-to-work students are engaged can influence their learning outcomes. The *content* of a work-site activity--the tasks students observe or perform--affects the types of knowledge or skills students will learn. Job shadowing, for example, typically promotes students' career awareness, while most after-school part-time jobs emphasize work readiness skills. The *duration* of an activity affects both the type and amount of learning that can realistically be achieved at the work site. Short-term experiences can provide career exposure; long-term experiences can

also provide opportunities for developing specific technical, basic, or problem-solving skills. Whether students receive *pay* for their workplace activities can affect how they evaluate the importance of their experience--what they learned and how they contributed to the employer.

DOL provided the demonstration grantees with some guidance on each of these work-based learning features. Work-based learning was to emphasize both formal training and work experience using a curriculum developed jointly by school and employer staff. The focus on progressive skill development clearly implied that workplace activities would occur over a fairly extended period, although the duration was not defined. Employers would pay students wages, and give wage increases on the basis of improvements in skill and performance. DOL guidance did not prevent the demonstration programs from offering other types of workplace activities to participating students, in addition to those specified.

In practice, workplace activities implemented vary significantly across sites and often deviate from the demonstration model (see Table IV.3). They differ in the types or content of the activities (including their emphasis on career exposure, work experience, or skills development), their timing and duration, and whether students are paid. In several sites, the workplace experiences currently available to participating students differ substantially from those planned and included in the program's original design.

One significant dimension along which the demonstration programs vary is the objective or content of the work-site activities. Very few, if any, provide both formal training and work experience during the high school years. Among the demonstration sites, there appeared to be a trade-off between the two types of work-site activities. The two large employers in the Seminole County/Siemens program and MTP program offer a carefully structured sequence of tasks designed to develop increasingly more advanced skills; the programs/employers pay students to participate in training but do not provide real work experience that allows them to interact with and observe experienced workers. Instead, when formal training is emphasized, students attend a special training facility separated from other employees and the normal production routine. Both of these programs include a postsecondary component in which

TABLE IV.3

CHARACTERISTICS OF WORK-SITE EXPERIENCES: TYPE, TIMING, DURATION, AND WAGES

Name of Grantee and Project	Type, Timing, and Duration	Wages
Boston Private Industry Council		
ProTech Health Care (Health Care)	Clinical rotation: • Begins at start of enrollment • One afternoon per week • Junior year only	Unpaid
	Job (optional): • Begins second half of junior year • 7.5 - 16 hours/week during school year • Can be full-time during summer • Up to four years, including postsecondary if student chooses a ProTech career	$5.50/hour to start, no benefits $6.00/hour for seniors
ProTech Financial Services (Finance)	Work-site rotation: • Begins at start of enrollment • One afternoon per week • Junior year only	Unpaid
	Job (optional): • Begins second half of junior year • 7.5 - 16 hours/week during school year • Can be full-time during summer • Up to four years, including postsecondary if student chooses a ProTech career	$5.50 - $7.50/hour Employers pay ProTech students their entry-level wage
Craftsmanship 2000 (Metalworking)	Full-time work during summers, starting after junior year Part-time work during second semester of first year of postsecondary education	Wages, benefits, insurance provided by employer sponsors through the program's nonprofit corporation Students paid regardless of time at work site; minimum wage in Year 1, increasing to $8.00/hour in Year 4 Bonuses awarded for good grades, ranging from $300 to $1,000
Gwinnett Youth Apprenticeship Program (No Occupational Focus)	Part-time jobs during junior and/or senior year Students must work at least five hours/week, but actual hours vary by employer.	Determined by employers
Illinois State Board of Education (ISBE)		
Rockford (Metalworking)	Six weeks paid job shadowing/orientation during summer after junior year Part-time jobs during 12th grade Full-time jobs during summers after high school and during postsecondary years	First summer pay based on student academic performance Part-time school-year wages determined by performance in summer job and adjusted each subsequent semester
Chicago (Metalworking)	Job shadowing during junior and senior years Program staff members try to find students jobs for summers and senior year.	Unpaid Determined by employers
Manufacturing Technology Partnership (Manufacturing)	Begins start of junior year. Two hours every afternoon for General Motors trainees. Usually more than 10 hours/week for students at smaller companies. Hours increase during summers.	$6.25/hour (partially subsidized by JTPA and special state education funds)

TABLE IV.3 *(continued)*

Name of Grantee and Project	Type, Timing, and Duration	Wages
MechTech, Inc. (Metalworking/Machining)	Starts when jobs found	$5.25/hour
	Work part-time junior and senior year Minimum of 15 hours/week	$0.60 raises for each 1,000 hours, up to 8,000 hours
	Full-time in summer and after high school graduation	
Middle Georgia Aerospace (Aerospace Technology)	Two weeks paid orientation/job shadowing summer after junior year	Determined by employers
Pennsylvania Youth Apprenticeship Program		
Lycoming (Metalworking)	Paid positions two full days/week junior and senior year	$4.25-4.50/hour for juniors $4.50-5.00/hour for seniors
	Summer jobs if available	
York (Metalworking)	Paid positions two full days/week junior and senior year	$5.00/hour
	Summer jobs if available	
Philadelphia (Metalworking)	Paid positions two full days/week junior and senior year	$5.50/hour; some employers give raises
	Summer jobs if available	
OaklandWorks (Media, Computers, Law and Government, Health and Bioscience)	Optional: • 10th grade: match with mentor • 11th grade: job shadowing and/or field trips to work sites in some academies • Summer after 11th grade: 200-hour paid internship • 12th grade: short-term paid internships in spring for seniors not going to college	 Unpaid Unpaid $5.00/hour (fully subsidized by special city funds or JTPA) $5.00/hour (fully subsidized by special city funds or JTPA)
Sears/Davea (Appliance Repair)	One week of half days in each of three departments at a service center	Unpaid
Scripps Ranch High School (No Occupational Focus)	9th-12th grade: job shadowing and work-site tours	Unpaid
Seminole County/Siemens (Electronics/ Telecommunications)	Three hours, two days/week: 11th and 12th grade	Minimum wage ($4.25/hour)
Toledo Private Industry Council (Industrial Automation and Robotics, Medical and Dental Assisting, Carpentry, Architecture and Drafting, Office Skills)	Starts when job found in junior or senior year; 10 hours/week	Minimum wage or higher
Workforce LA Youth Academies (No Occupational Focus)	Placed sometime in 11th or 12th grade	$5.21/hour to start
	Work four days/week, four hours/day; can keep job if enrolled in college	Up to $7.01 with promotions

JTPA = Job Training and Partnership Act.

continuing students are working in actual jobs while they attend a community college. On the other hand, when high school students are placed in real jobs that provide real work experience, as most of the programs do, the students are often expected to contribute to company production. In these cases, employer staff members are more likely to treat students as they would any new employee, providing informal training as students' mastery of basic tasks leads to more advanced assignments and the need for additional skills. In such real-job placements, students are unlikely to be involved in a carefully planned program of guided learning to ensure that they master target skills. This is particularly true for placements in small firms, where the range of equipment is limited and the impact on production of diverting employee time to structured training can be substantial.

A few programs do not routinely offer students any extended workplace experiences during their high school years; instead, they focus on career exposure. The Chicago ISBE and Scripps Ranch High School programs provide job-shadowing and work-site visit opportunities. Participating employers have hired a few students for part-time jobs; the jobs are not systematically available to student participants, however. Similarly, the Middle Georgia Aerospace program provides only a two-week summer job-shadowing experience for students during high school.

The variation across sites in workplace activities is greatest for students' first year of program participation (usually the 11th grade).[6] Work-site experiences available to new students range from short-term, unpaid job shadowing and internships to paid part-time employment for the full year. More than half of the demonstration programs do not provide extended paid work-site experiences during the first year. For example, Scripps Ranch High School, Chicago ISBE, and OaklandWorks offer students occasional work-site visits or tours. Among the programs that offer paid activities throughout the year, only MTP and Seminole County/Siemens emphasize formal skills training; work-site activities in the other programs

[6]In some programs, including Gwinnett, MTP, Chicago ISBE, Philadelphia, PYAP, and Seminole County/Siemens, a high proportion of new enrollees are seniors. These seniors generally participate in the same activities as new juniors.

provide students with work experience and are more like part-time employment.[7] Students in paid training or jobs in the first year spend 5 to 16 hours per week at the work site during the school year.

Several programs do not begin on-site activities until the summer after junior year. Students in the Rockford ISBE and Middle Georgia Aerospace programs are paid for several weeks of job-shadowing and orientation experiences during that period (six weeks in Rockford, two weeks in Middle Georgia Aerospace). Craftsmanship 2000 students spend the summer completing a special project at one of the sponsoring companies (for example, making a vise from blueprints). Most students in the OaklandWorks academies work between four and eight weeks at a local firm.

Delays in the start of extensive workplace activities are sometimes intentional. ProTech offers jobs to juniors who want them but delays placements for a marking period to provide students with incentives to keep up grades and attendance; only those who meet the program criteria ("C+" average and 85-percent attendance) during the first semester of participation are placed in paid part-time employment. During the first semester, students tour different departments at their employer to receive exposure to several aspects of the industry and to allow them to identify preferences before jobs are assigned. The Rockford ISBE and Craftsmanship 2000 programs first engage students in several weeks of job-shadowing rotations to expose them to the environment and work at different sponsoring firms; students then can make an informed choice of work placement for the following year or summer. The York PYAP program keeps its students at school during the first two weeks of 11th grade to build group cohesion and work on basic skills students will need at the work site.[8] Prior to their job placement, the PYAP students receive instruction on job safety and basic machining. Students are then placed at their work site only after the teaching team

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[7]MTP now offers students some choice between formal training and work experience. GM provides students it hires with skills instruction at a special training center, while other MTP employers hire students to do actual production work.

[8]The program also sends the students and teaching team to a camp for a couple of days. At the camp, the students participate in recreational activities that require teamwork and problem-solving skills.

considers them to be work ready. In contrast, other programs must delay work-site experiences because of the lack of placement sites. For example, students in the Toledo and MechTech, Inc. programs can start their paid employment at the beginning of 11th grade, but students are placed in positions only as they become available. Thus, the timing of work-based learning is unpredictable and varies for each student.

The school-to-work programs compensate students in different ways and at different levels for their work-site experiences. Work-site visits, rotations, and job-shadowing activities (such as those offered by ProTech, Chicago ISBE, OaklandWorks, and Scripps Ranch High School) generally are unpaid. Employers in Middle Georgia Aerospace and Rockford ISBE, however, do pay students for job shadowing. Employers that provide work experience or jobs, and even those that provide strictly formal training, pay students wages. Most of the demonstration programs set the wages employers are expected to pay students; all students usually start at the same wage. A few sites allow each employer to determine the wages it will pay the students it sponsors. Several programs pay students the federal minimum wage ($4.25 per hour). Most of the programs, however, offer a higher wage, either as incentive for students to participate or because students do work similar to that of other employees with higher wages. ProTech Financial Services pays the highest starting wage: $7.50 an hour. In the Toledo Private Industry Council program and OaklandWorks, students' wages are subsidized by the Job Training and Partnership Act and special city redevelopment funds, respectively.

Many of the programs allow employers to give students raises but specify the maximum amount employers can pay. The wage increase is usually based on experience and/or the employer's assessment of students' work performance. Craftsmanship 2000 is unusual in that students receive cash bonuses based on their grades ($600 for a grade point average of 3.1 or higher during each year of high school).

Craftsmanship 2000 is also unique in that it pays its students all year long for three years, even when they are not engaged in work-site activities.[9]

The workplace activities described here and in Table IV.3 are included in the program models and are reportedly the norm for participating students. Data on individual student experiences confirm their participation in such activities (see Table IV.4). Sites in which a workplace position during high school either defines program participation (Toledo Private Industry Council) or is intended to be provided to all participants (most others, except Chicago ISBE and Scripps Ranch High School) had high levels of participation. In most of these sites, close to 100 percent of students in the fall 1992 cohort--the first year that many programs enrolled students--were in intensive workplace experiences at some point.[10]

The characteristics of students' actual experiences were similar to those detailed in the program models. The average number of weeks at the work site vary across sites but indicate that students in most of the programs were in ongoing jobs/training positions that lasted more than a year. The duration of the work-site activities in the Craftsmanship 2000, Rockford ISBE, and Toledo Private Industry Council programs is significantly lower. Craftsmanship 2000 provided only summer placements during high school, workplace activities in the Rockford site started with the summer after students' junior year, and the Toledo program placed students in jobs throughout the year (instead of in the fall) and experienced high rates of early program exits. Average hours per week also varied. They ranged from a low of six hours per week in the Seminole County/Siemens program to 40 hours per week in Craftsmanship 2000 summer placements. Most programs provided work experiences during high school that averaged about 20 hours per week, a combination of fewer hours during the school year and up to full-time work during the

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[9]The Craftsmanship 2000 compensation structure changed beginning in school year 1995-1996. New participants are paid only for their workplace activities.

[10]An intensive workplace experience is defined as a work-site activity with a duration longer than two weeks and in which students function semi-independently. Thus, job-shadowing experiences are excluded from this definition.

TABLE IV.4

CHARACTERISTICS OF SECONDARY WORKPLACE EXPERIENCES, BASED ON STUDENT MANAGEMENT INFORMATION SYSTEM DATA
(Fall 1992 Cohort)

Name of Grantee/Project	Number of Students with a Documented Workplace Experience[a]	Percentage of Cohort with a Documented Workplace Experience	Characteristics of Workplace Activities			
			Average Number of Weeks at Work Site	Average Hours Worked Per Week	Average Hourly Wage	Percentage of Students with Wage Increases
ProTech Health Care	81	95.3	52.2	16.4	$5.41	100.0
ProTech Financial Services[b]	67	93.1	20.3	18.5	$7.01	80.6
Craftsmanship 2000	17	100.0	16.6	40.0	$4.32	58.8
Gwinnett Youth Apprenticeship Program	39	75.0	59.0	23.0	$5.74	5.1
Rockford ISBE	13	86.7	26.7	31.5	$4.71	1
Chicago ISBE	0	0	0	0	0	0
Manufacturing Technology Partnership	50	100.0	77.7	22.7	$6.25	0.0
Middle Georgia Aerospace[b]	0	0.0	NA	NA	NA	NA
Pennsylvania Youth Apprenticeship Program						
Lycoming	12	100.0	80.4	16.5	$4.56	16.7
Philadelphia	10	100.0	61.6	21.6	$6.07	30.0
York	18	90.0	67.3	18.3	$4.81	55.6
Scripps Ranch High School[b]	8	9.1	20.3	17.7	$5.76	12.5
Seminole County/Siemens	21	100.0	78.7	6.0	$4.25	0.0
Toledo Private Industry Council	7	100.0	21.5	12.8	$4.66	0.0

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

NOTE: OaklandWorks provided workplace experience for students through summer jobs, but no data on these jobs were provided.

[a] Excludes job shadowing or other occasional activities at a work site, but may include short-term (for example, one-week) internships.

[b] Fall 1993 cohort data reported for ProTech Financial Services, Gwinnett Youth Apprenticeship, Middle Georgia Aerospace, Scripps Ranch High School.

NA = not applicable.

summers. The wages paid to students also differed across programs. Across the two years of workplace activity reflected in Table IV.4, only students in the Seminole County/Siemens program were paid the minimum wage ($4.25 per hour). The average hourly wage across sites was close to $6.00 per hour. Some programs--ProTech, Gwinnett, and MTP--started with higher wages, as stipulated in their program designs (see Table IV.3). In most sites, students who performed well were given wage increases by their employers.

The extent to which the demonstration programs offer the type of paid, ongoing work-based learning specified by the youth apprenticeship model is related to several factors. First, many programs that have had a difficult time obtaining firm commitments from employers to hire students either do not provide ongoing work-site experiences or provide experiences only to some participants. Second, programs that do not require students to make a strong commitment to a specific occupation may emphasize shorter-term career exposure more than longer-term work-site experiences that provide skills training in a particular occupation. Third, some programs have decided to delay extended work-site experiences until at least the summer after the junior year, to give students a chance to acquire relevant skills in school or to ensure that the experiences are provided to students who have made a commitment to the program and the target occupation. Fourth, union contract rules may prohibit employers from allowing students to engage in production work. The demonstration programs did not find child labor laws to be a significant barrier to obtaining employer commitments for student work-site positions.[11]

D. USE OF COMPETENCY LISTS AND TRAINING PLANS

As indicated earlier, demonstration work-site activities were expected to emphasize both general work experience and progressive skills development according to a work-site curriculum. Work-site curricula or training plans were not universally or uniformly implemented by the demonstration programs, however.

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[11]Most sites did produce written material for employer recruitment that addressed the issues of federal and state labor regulations regarding students.

Programs that provided students only with short-term work-site visits and job-shadowing experiences generally did not develop or use training plans, because they did not expect employers to focus on building skills. On the other hand, programs that offered either formal training or work experience during the demonstration period developed lists of tasks or skills that students were expected to master while in the program. These checklists were designated primarily for use at the work site; their purpose was to guide students' training, help program staff members monitor students' progress, and provide a structure for assessing and documenting students' skills.

The content, consistency, and actual use of training plans differ significantly among the programs. The *types of skills* specified, for example, are related to the scope of the program's occupational focus. Programs with a broad occupational focus seem to emphasize work experience over skill building; they are more likely to develop training plans and skill checklists that focus on general workplace skills. The OaklandWorks "Work-Based Learning Plan" and the ProTech training plans, therefore, primarily identify skills recommended by the SCANS report or other broad competencies such as work ethics, professionalism, and communication.[12] In both of these sites, however, a small part of the training plan is tailored to include job skills specific to the students' work-site placement. In contrast, the training plans for the metalworking/machining programs in the demonstration focus primarily on job-specific technical skills, such as competency on particular equipment and precision of measurement.

The *level of standardization* in the training plans used by the demonstration programs is limited. Program staff members report that having a consistent training plan for all participants--one that identifies the skills students will learn and the sequence of instruction--may be a desirable goal but is not practical. Except for the Seminole County/Siemens program, which has a single employer, no program asks

[12]ProTech jobs are preceded by a short period of formal training and departmental rotations.

employers to adopt a single standard training plan for all students.[13] Most of the demonstration programs have several participating employers, and program staff members work with these employers to design training plans to fit the firms' training needs and capacity.

Several factors prevent programs from establishing a single standard training plan. First, employers may lack equipment needed to help students develop the full range of desirable skills. Second, employers may be unable to allocate the resources necessary to cover all of the program's competency objectives. Some employers, particularly smaller companies, expect students to engage in actual production work; the type and schedule of production demand determines the training students receive. Training students to learn skills unrelated to the current production schedule would divert them from productive work and require the company to use experienced workers' time to train and supervise the students. Production schedules may also interfere with the company's ability to help students acquire skills in the particular sequence laid out in a training plan. Third, some firms prefer to use the same training plan for students that they use with other entry-level employees in the same positions. Employers may resist adopting a training plan that requires them to cover skills they feel are unnecessary or that fails to cover skills they believe are critical to successful performance.

Some programs accept that students placed with different employers or in different types of workplace positions will develop different skills. Other programs try to compensate for potential gaps in the training envisioned for students, particularly those placed with small businesses.

One approach designed to expose students to a broader range of skills is to rotate them through participating employers. For example, in the PYAP sites, the lead teacher meets with each employer to develop a training plan for students at that work site that is specific to the skills the employer can cover. So that students can learn a more comprehensive set of skills, the York PYAP assigns each student to

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[13]The Seminole County/Siemens program has been unsuccessful in recruiting other employers. One reason for its lack of success may be the program's insistence that other employers adopt the training plan used at Siemens.

several participating employers, moving students around after they have completed training at each employer. Other programs have considered this approach but have abandoned it because of lack of interest among participating employers. Interviews with small-business owners and program staff members in a few sites suggest that some firms view participation as a means of identifying and training future employees. They want to keep students they are satisfied with, both to continue to observe the students as potential employees and to protect their training investment. Small firms, which often do not have the profit reserves of larger companies, invest some resources to train students and receive a return on this investment when the students have had sufficient experience and training to work semi-independently and contribute to the firms' output. These firms are unlikely to encourage students to move on to other employers just as the students are becoming productive.

As an alternative to rotations, MechTech, Inc. program staff members supplement students' training at the work site, if necessary, with specialized school-based instruction. MechTech, Inc. uses facilities at the local community college (where the program's administrative office is housed) to give students experience with machines they are not exposed to at the work sites. Providing additional training at the college is critical, because students in the program--who are registered with the state as machinist apprentices--require documentation of a certain number of hours on specified machines to be certified and obtain journeyperson status.

The demonstration sites generally took the development of training plans seriously, but use of the competency lists varies. In some sites, like MTP and OaklandWorks, the skill list provides supervisors with information about the general competency goals but is not intended specifically to direct training. Skill lists in the PYAP sites are used as real training plans; checklists are consulted frequently and viewed as diagnostic tools to identify areas where students need additional exposure and skill-building opportunities. In both cases, however, training is informal and new skills are learned on an as-needed basis.

Skill lists are more likely to be used to guide training under two circumstances. First, when skill lists are very general (for example, they primarily include the SCANS competencies), employers can easily formulate workplace tasks that will help students acquire and demonstrate those skills. Second, employers are willing to follow training plans when they have been carefully tailored to each individual firm's resources.

Student evaluation is a more common use of competency checklists and training plans. Just under half of the demonstration programs award students grades and/or credit for their workplace activity. These grades are generally based on the employers' evaluation of the students' performance. Often, the evaluation is based not only on the students' mastery of the job-specific skills, but also on their work ethic, attitude, and ability to make decisions. Some of the programs, including Rockford ISBE and Gwinnett, award students separate credits for their workplace experience. Other programs, such as PYAP sites, incorporate students' workplace performance when determining a grade for a vocational class. The Craftsmanship 2000 program considers students' workplace performance in awarding cash bonuses to students for their academic achievement. Moreover, an articulation agreement with a local community college allows program participants to be awarded retroactive postsecondary credit for their workplace experiences after completing the related postsecondary program.

Program-related *skill certificates*--one possible use for the competency lists--have not been emphasized by the demonstration programs. Many programs, particularly those that do not focus school- or work-based learning on specific job skills, do not award skill certificates. Those that award certificates generally do so as a routine part of the vocational programs offered in the school system, and the assessment of tasks performed at the work site has little input into the preparation of the certificates. For example, the MTP vocational center regularly provides vocational completers with skill certificates on the basis of their school-based performance. In the Seminole County/Siemens program, participants and nonparticipants will receive a certificate from the school district identifying the number of hours spent in

the electronics program. Similarly, Craftsmanship 2000 participants will receive the same certificate of competency as students in the regular metalworking program, although the certificate may include more specialized skills (such as welding and computerized numeric control) because Craftsmanship 2000's vocational curriculum was broadened to include these skills. Some of the demonstration programs provide occupational certificates for students who successfully complete the postsecondary part of the program. For example, Siemens gives program completers a certificate recognized by all Siemens facilities.

It is not clear to which extent the competency lists that were intended as a basis for work-site and, sometimes, school-based training and assessment can be considered *skill standards*. In most sites, some employers played a substantial role in identifying relevant competencies and learning objectives for participation, and these were included in the training plans. Employer partners in several programs, including MTP and the PYAP sites, engaged in a process similar to that of developing skill standards; they focused on entry-level positions, developed lists of tasks they expected workers in those positions to perform, and broke those tasks down into components or competencies. However, the step of benchmarking or setting of high performance standards for those tasks was not universally undertaken. Moreover, the skill lists and their ratings do not often translate into skill certificates--formal documentation of student achievement of the standards--that are recognized by industry firms even within the local community, much less at a regional, state, or national level.

In general, the concept of skill standards was neither readily understood nor applied by demonstration program staff. Many programs viewed training plans as "the end," instead of as one component of a more comprehensive set of requirements for skill standards. Some engaged students in such a diverse set of school- and/or work-based activities that well-defined skill standards for specific occupations--developed with industry input--would have been impossible to prepare or implement. Even programs that had an occupational focus often found it difficult to obtain consensus among a subset of relevant employers on the fundamental skills required for entry-level work in the target occupation(s). Moreover, some sites were

reluctant to focus program activities, including workplace experiences, on specific job skills; they preferred to emphasize broader and more transferable competencies.

E. ROLE OF WORK-SITE SUPERVISORS AND OTHER STAFF MEMBERS

Adults who supervise students at the work site are a critical part of the work-based learning component. Because these co-workers often have substantial contact with students at the work site, they have the opportunity to influence students' personal, career, and skill development. Many of the demonstration programs assign employees to work with or supervise students while they are at the workplace. In programs in which students do not engage in ongoing or frequent work-site activity, students are still given opportunities to interact with and observe employees. Despite limited contact, these work-site staff members can provide students with pertinent information and have an impact on students' lives.

The demonstration sites use two approaches to designating workplace staff to oversee and guide school-to-work participants. In most programs, the assigned "mentor" is the person (or persons) who directly supervises or trains the student. In other programs, staff members who are not students' direct supervisors share responsibility for "mentoring" the students. For example, in the Philadelphia PYAP program, two adults generally share responsibility for each student. These adults are (1) a job coach (usually a foreperson or an experienced operator of a particular machine), who instructs students on how to use the equipment, and (2) another adult (usually the owner or an administrator), who is available to talk to the student and responsible for the student receiving the proper training. This provides students with an individual outside their site unit to talk to if a problem develops at the work site.

Regardless of which model is adopted, students report that they rely primarily on those colleagues with whom they work most closely to provide advice and help them learn new skills. Thus, students may have several "unofficial" mentors, in addition to a formally designated one. How much students interact with their mentor(s) and the role these mentors play in students' lives vary. Even within individual

programs, students in focus groups discussions reported significant differences in the amount of time they spend with these adult co-workers.

The person(s) assigned to work with the students can perform several roles. Some are identified in advance (for example, in mentor-recruiting or mentor-training materials) and expected to be carried out by the designated work-site staff. Supervisors/mentors have taken it upon themselves to perform other roles and often do so on an ad hoc basis. Designated and voluntary roles include:

- ***Socializing Agent***--teaching students appropriate workplace behavior and reinforcing the work ethic
- ***Counselor/Adviser on Personal Matters***--providing guidance and support to students on personal issues unrelated to the workplace or the occupation
- ***Career Counselor/Adviser***--providing advice and guidance on issues related to work, the occupation, and/or career choices
- ***Coach/Motivator***--providing encouragement and motivating students
- ***Trainer/Instructor***--teaching students necessary occupational skills
- ***Academic Tutor***--tutoring students in academic subjects
- ***Monitor/Supervisor***--ensuring that students comply with program requirements and evaluating student progress

Mentors generally perceive themselves as taking an active part in students' work-site activities (Table IV.5).[14] Mentors view their primary roles as teaching students job-specific skills and work-appropriate behavior, counseling students on career options, and assessing students' performance. The programs also place the greatest emphasis on these functions of work-site staff members.

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[14]Because we ascribed roles largely on the basis of mentors' perception of their functions, instead of strictly on the basis of written program material, the fact that a particular role was not ascribed to mentors in a program does not mean that no mentor has ever performed that role. Rather, it suggests that mentors in the program did not report that role as one they performed frequently.

TABLE IV.5

ROLES ASSUMED BY WORK-SITE STAFF MEMBERS

Grantee Name/Project Name	Socializing Agent	Counselor/Adviser: Personal	Counselor/Adviser: Occupational	Coach/ Motivator	Trainer/ Instructor	Adviser/ Tutor	Monitor/ Supervisor
Boston Private Industry Council (ProTech)	X		X		X		X
Craftsmanship 2000	X		X	X			X
Illinois State Board of Education							
Chicago	X		X				
Rockford			X		X		X
Gwinnett Youth Apprenticeship Program	X				X		X
Manufacturing Technology Partnership	X	X	X	X	X	X	X
Middle Georgia Aerospace	X		X				X
Sears/Davea			X		X		
Pennsylvania Youth Apprenticeship Program							
Lycoming	X		X		X	X	X
Philadelphia	X				X		X
York	X		X	X	X		X
OaklandWorks	X		X				X
Scripps Ranch High School			X				
Seminole County/Siemens	X		X		X	X	X
Toledo Private Industry Council					X		
Workforce LA Youth Academics	X	X	X			X	X

The mentors in nearly all of the programs feel that one of their most important roles is to familiarize students with the workplace and work-appropriate behavior. In focus group discussions, the GM mentors in the MTP program reported that they were providing students with values critical to their future success. Similarly, one of the Craftsmanship 2000 mentors stated, "We taught the students how to work--they already knew about metalworking from class--but we taught them that they had to be responsible for getting to work on time and working with initiative."

Roles that mentors in the programs perceived they filled less frequently were those of academic tutors, coaches and motivators, and personal counselors. In only a few programs do work-site staff members focus on each of these. MTP mentors at GM and work-site instructors at Siemens tutor students in academic subjects when necessary. Most students are willing and responsive at work; in a few sites, teachers or counselors asked mentors to help motivate students to perform well at school. For example, a schoolteacher invited a Craftsmanship 2000 mentor to give a "pep talk" in class to student participants the teacher felt were becoming disinterested and lazy. The vocational school in the York PYAP program sought mentors' support in getting a student to pay more attention to his schoolwork. Individual mentors sometimes provided persistent support and expended considerable effort to motivate students in jeopardy of school failure or program termination. This often included counseling or help with personal issues (such as family, relationship, or health problems). Work-site staff members in a few programs found themselves naturally discussing these issues with their students, as they might with other colleagues; other mentors made it a point to check on students' overall well-being and found themselves providing advice or referrals to other resources. Some sites, such as the Middle Georgia Aerospace program, instructed mentors *not* to get involved in students' personal issues, citing concerns about liability and intrusion into family privacy. Most often, work-site staff members provide tutoring, motivational, and personal support and guidance to school-to-work participants one-on-one, usually on an as-needed basis.

To a large extent, differences in mentor roles across and within programs depend on students' needs. Many students in the Workforce LA, ProTech, MTP, and OaklandWorks programs come from disadvantaged families and have not had the same exposure to the workplace and career paths as other students. Focus groups with mentors in the Workforce LA Youth Academies indicate that many spend as much as two hours daily with their assigned students. These individuals act as role models, help students understand career ladders, and help them build work readiness skills. In some cases, they have also become confidants, guiding students on personal, educational, and career issues. Mentors in the MTP program and work-site supervisors in ProTech are expected both to instruct students and to provide career guidance.

Most mentors receive training to assist them in their roles. Supervisors/mentors attend at least one session in which program staff members describe the program model, their expectations of the work-site staff, and operational details (such as wages paid, evaluation forms, and other paperwork). Many work-site staff members are provided with supervisor/mentor manuals, which outline the basic information about the program and staff members to contact when questions or issues arise. Some mentors are involved in more-extensive training. MTP mentors receive 40 hours of training on issues involved in working with adolescents and on sexual and racial harassment. Job coaches recruited for the Craftsmanship 2000 program have received general managerial training to help them oversee students' work and completed a training package, "How to Train on the Job." ProTech workplace supervisors partnered with one of the high schools spent an afternoon at the school, discussing what it means to be a ProTech supervisor, how to create and use training plans, and stages of adolescent development.

The importance of mentor training should not be underestimated, at least in programs using a youth apprenticeship model. Work-site supervisors participating in focus groups emphasized the value of the training and need for information. Mentors generally had no difficulty absorbing the operational aspects

of their role. However, they were sometimes uncertain about their ability to deal effectively with the students assigned to them and found the training helpful in reducing their fears.

F. ISSUES IN DEVELOPING WORK-BASED ACTIVITIES

Implementing work-based learning opportunities for school-to-work participants was and still is a challenge for the demonstration programs. Differences in target occupations, program objectives, and lead institutions affect sites' approaches to and success in obtaining and structuring effective work-site activities. Several issues emerged during the demonstration period that may provide guidance to planners of new school-to-work initiatives:

- ***Expansion of school-to-work will require careful coordination of employer recruitment among districts or schools in a region.*** Expansion of school-to-work initiatives can create competition for employer commitments and burden on local firms unless employer recruitment efforts are coordinated. One approach to head off these potential problems is to develop a school-based, workplace management information system. This networked system could document employer commitments, available slots, and current student assignments to worksites and prevent against excess demands on individual employers. Alternatively, districts or groups of districts could assume central responsibility for recruiting and coordinating workplace positions for students, rather than individual schools. As school-to-work reforms spread, the need for centralized and coordinated employer recruiting is likely to grow.

- ***Program staff should plan employer meetings and events carefully to maximize time efficiency and interest.*** Recruiting and maintaining the participation of employers requires that program staff members pay careful attention to how to best use employers' time and engage their interest. For example, Scripps Ranch High School staff learned that declining employer participation in meetings was due to employer perception that the meetings lacked organization, effective group facilitation, and attention to time schedules. School staff re-oriented the structure of the meetings. Moreover, they devised the idea of a "swap meet": schoolteachers would come with identified desired guest speaker topics, and employer representatives would identify topics and activities they could present in classrooms (e.g., Application of Computers to the Business World, History of Stealth Aircraft, Math for Carpentry, Interviewing Techniques). A meeting was conducted at the school in which school and employer staff pinned up on large bulletin boards their various ideas and then sought matches with their counterparts. This activity was reported by all involved as a fun and efficient way to accomplish the goal of getting employers into the classroom.

- ***The importance of mentor training should not be underestimated, at least in programs using a youth apprenticeship model.*** Work-site supervisors/mentors report that gaining familiarity with adolescent behavior and issues helps them to encourage and monitor student participants more effectively.

- ***Delaying intensive work-site activities may be appropriate.*** Programs often find it advantageous to precede paid, ongoing student employment with job shadowing or formal work-site rotations to enable students to confirm occupational interests, work-site placement preferences, and program commitment. Delaying intensive work-site activities in this way can increase student retention and employer satisfaction.

- ***A standard or consistent training plan is not feasible in most school-to-work initiatives.*** Evidence from the demonstration suggests that having a consistent training plan for all school-to-work participants--one that identifies the general and job-specific skills students will learn and the sequence of instruction--may be a desirable goal but is not practical. Only initiatives that rely on a single employer to provide work-based learning are likely to adopt a standard training plan for all students. Two approaches are most commonly adopted in place of this idealized standard training guide; (1) competency lists that specify only very broad and general skills, such as those identified in the SCANS report, around which many employers can fairly easily structure work-site tasks and assignments; and (2) more specific, job-skill-oriented training plans that have been tailored to individual employer resources.

- ***The concept of skill standards may not be readily understood or applied.*** At least among the demonstration programs, there appeared to be confusion over the definition, preparation, and use of skill standards. Policymakers may need to describe skill standards more clearly and provide technical assistance to local partnerships before this element of school-to-work is widely implemented.

V. CONNECTING LEARNING AT SCHOOL AND AT WORK

Integration of school-based and work-based learning is considered a key feature of school-to-work transition reforms. Although work experience related to the occupational focus of a particular school curriculum is presumed to have some benefit for students, the school-to-work model emphasizes the greater advantages of *actively* and *purposefully* linking students' workplace tasks with school instruction. Careful coordination of work-site activities and school curricula is expected to show students that competencies learned in school are useful at work, and vice versa, and to reinforce the acquisition of basic and technical skills. The youth apprenticeship model of school-to-work particularly emphasizes this component, and the demonstration sites were encouraged to create learning experiences in school and at the workplace that provide opportunities for students to use and appreciate the knowledge they acquired in each setting.

School and work activities can be integrated in two principal ways, and sites varied in their emphasis on the two approaches. Most of the demonstration programs attempted to develop classroom curricula or other school-based activities to help students prepare for or build on their work-site learning experiences. A few programs tried to structure work-based activities to relate to students' classroom activities; a subset of these programs modified both school- and work-based experiences to better link the two. Differences in the strategies pursued invariably depended on the types of workplace experiences in which students were involved, including duration, timing, and objectives (career exposure, work experience, or training).

As a group, the sites did not always fully meet the demonstration's integration goals. The limited workplace experiences that some programs offered precluded more than an occasional integration activity. In addition, the programs often did not place priority on this particular component, information about students' activities in each setting was not always shared effectively, and students were often too widely dispersed across classrooms and work sites to allow meaningful integration activities. Moreover, because

school-to-work was still a fairly new concept, little information and few examples of effective integration activities were available during the early demonstration period. Program staff members could not rely on ready-made models for this component, as they could for integrating academic and vocational education.

In spite of the constraints the programs faced, however, many found creative ways to link activities in the two settings. In this chapter, we first describe how employer and school staff attempted to share information with each other, a critical element of any integration effort (Section A). We then describe the integration strategies the demonstration programs pursued (Section B). Finally, we summarize and examine the factors that appear to affect the extent and success of integration (Section C).

A. EMPLOYER-SCHOOL COMMUNICATION AND INFORMATION SHARING

Effectively integrating school- and work-based learning involves two steps. First, teachers and employer staff members must exchange information about the type and pace of students' activities and the skills development that will take place at school and at work. Under the best circumstances, information sharing also allows staff members to learn about each others' institutions. Second, this information must be used to develop curricula that incorporate work-site tasks and issues in classroom instruction and projects; workplace activities must be structured to reflect the academic and vocational skills taught in school.

Exchanging information about planned or actual student experiences in school and at the workplace has proved the easier of these two steps. The *timing* of this type of communication varies. Most of the demonstration programs provided opportunities for school and employer staff to meet during the programs' planning stages or early in the school year to discuss expectations about school-site and work-site activities. Some programs involve teachers and workplace staff members in ongoing communication to further integration efforts.

In several programs, teachers and mentors engage in formal ongoing communication through regularly scheduled meetings. In a few programs, including the Manufacturing Technology Partnership (MTP) and

the York Pennsylvania Youth Apprenticeship Program (PYAP) sites, mentors are sent students' grades. The mentors also meet with vocational teachers twice each month to discuss the progress and activities of individual students. In the PYAP program, the vocational teacher--who meets with mentors at the work site--sits in on weekly planning sessions with academic teachers and can share information about work-site activities with them. At the Lycoming PYAP site, teachers have been faxing lesson plans each week to workplace supervisors, to keep them informed about students' school-based instruction.

Some programs rely on a more ad hoc approach to communication between teachers and employer staff. Although information in such programs may be shared on an ongoing basis, the timing and approach is generally not systematic. For example, in ProTech Health Care, staff--called project coordinators--are hired by the Private Industry Council and maintain offices at participating high schools. These staff members are responsible for conducting visits to work sites, speaking with students and their supervisors, observing workplace activities, and sharing information gained with school staff. They do not have a specific schedule for these activities, however. The electronics teacher in the Seminole County/Siemens program often learns about what students are doing at the workplace through discussions with the student participants.

The *types* of information exchanged by school and employer staff members are even more important to the success of integration than the timing of the communication. Three kinds of information appear most crucial to linking school- and work-based learning:

1. Competency objectives
2. Planned or developing learning activities
3. Characteristics of partner institutions and settings

Basic information of each type can be obtained during the initial stages of a program or school year; ideally, however, communication on these topics takes place more frequently. Identifying competencies can be

an interactive process. Inevitably, there are deviations from planned lessons and tasks. (These might include, for example, a desire by teachers or students to take advantage of current events or to continue work on particular curricular units in school, or fluctuations in production schedules or equipment availability at work.) Therefore, developing an understanding of school or workplace culture and terminology can best be achieved in multiple sessions or visits, instead of single ones.

1. Competency Objectives

To link work-site and school activities, school and employer staff should have clear direction. Competency objectives--and the process of defining them--can provide that direction. Competency objectives identify the kinds of knowledge students are expected to acquire and some of the ways staff members will assess whether or not students have acquired that knowledge. By discussing and agreeing on a specific set of competency objectives, employers and school staff members in the demonstration programs were sometimes able to reach agreement on the overall learning goals of their school-to-work program.

School and employer staff members generally defined one or both of two types of competency objectives. Some sought to help students develop *general skills*, such as those identified in the U.S. Department of Labor (DOL) Secretary's Commission on Achieving Necessary Skills (SCANS) report, that apply to nearly any type of job. These include problem-solving, communication, basic math, and work readiness skills. Others focused more on identifying *technical skills* that applied to students' specific career major or interest. A few programs included both sets of skills in their determination of competencies and goals.

Because the general skills are common to almost all jobs, it was not always necessary to have detailed discussions between schools and employers about how to define them. Central program staff members--often school personnel--typically identified those skills that program components would target and did not always consult with employers. In a few sites, an attempt was made to include employer staff as a group

in at least reviewing and agreeing to the general skill competencies. Demonstration programs in which there was no or little specific occupational focus to school- or work-based activities were most likely to emphasize these general skills in discussions among school, employer, and third-party staff members.

Identifying and agreeing on occupation-specific technical competency objectives generally took more time. Extensive discussion of technical skill competency objectives was most common in programs that had a single occupational focus and/or that clustered students in classes by career interest. By contrast, programs that had no particular occupational focus (such as the Gwinnett Youth Apprenticeship Program or Scripps Ranch High School) would naturally have found it very difficult to define any specific set of technical competency objectives and did not attempt to do so. Some programs, including OaklandWorks and ProTech, identified a set of general competencies; they then tailored the competency listing to include technical skill objectives for individual students on the basis of their workplace assignments and discussions with the students' employers.

Even when participating employers were all in the same industry, the formulation of programwide technical skill objectives required a substantial amount of discussion and negotiation. Two of the programs with the most extensive set of technical competency objectives--Tulsa's Craftsmanship 2000 and the PYAP--involved a mix of metalworking employers with varying skill needs and capacities for training students. Developing a single comprehensive set of technical competencies that would guide program participants' training required several years to finalize.

Complicating matters further, employers sometimes used the same occupational terms--such as "machinist"--to refer to different jobs that required a distinct set of skills. For example, the Craftsmanship 2000 employers and school staff members had to devote many of their planning meetings to formulating a mutually acceptable definition of machinist, one that combined skills used by machinists in each of the participating firms and emphasized those skills used in all the firms. By identifying the principal technical skills needed to work in jobs throughout the local metalworking industry, the program staff could organize

both the school and work-site activities around competencies needed for a wide variety of employment opportunities. The extended discussions over negotiating competency objectives had the added benefit of facilitating communication between employers and teachers about ways to integrate work-site and classroom activities. School staff members learned a great deal about the types of production processes to which students would be exposed during their work-site assignments. Employers learned about the types of technical skills that the current vocational curriculum was designed to develop. This information helped the employers structure work-site activities to complement the curricula and make informed and precise suggestions about how the classroom lesson plans should be modified.

The formulation of competency objectives was sometimes an iterative process. After staff members developed activities designed to achieve the competency objectives, and students began participating in these activities, employers identified new skills that students needed to perform well in their work-site assignments. As discussed in the next subsection, this led to further refinement of the competency objectives.

2. Planned or Developing Learning Activities

Few sites started with a planned set of well-integrated work-site and school activities. Instead, most sites integrated incrementally, as schools and employers learned more about the skills students needed to perform well in each setting. Even when competency objectives were agreed on by employers and school staff members in early preimplementation meetings, integration required sustained communication about students' experiences and performance in order to refine the skill development objectives and tighten the connection between school and work-site activities.

In some sites, school and employer staff members first discussed linking classroom and work-site activities just before students were placed in specific work-site assignments. At that point, school and employer staff members in a few sites jointly developed student work-site training plans, indicating the specific tasks students would perform and the skills they would be expected to use or acquire at the work

site. School staff members sometimes were able to suggest which tasks would exploit skills students had already learned in the classroom or would build on skills students had already developed. School staff members also learned more about the tasks students would perform in the work site and those they could have performed had they received specific training in advance. This information helped them refine their lesson plans so that the next cohort of students could be assigned more varied or responsible tasks in the workplace. In most sites, however, teachers did not provide input into the development of work-site training plans.

By keeping employers up to date about students' classroom assignments, teachers were sometimes able to encourage work-site supervisors to take advantage of or reinforce the skills students were learning at school. School staff members communicated with employers in a variety of ways to provide them with information on their lesson plans and more ad hoc school-based activities. As mentioned earlier, for example, teachers in the Lycoming PYAP site faxed their lesson plans each week to participating employers; after reading one fax describing a lesson on temperature, one work-site supervisor spent more time going over the conversion between Celsius and Fahrenheit and how his firm's machinery measured temperature. Key teachers at Scripps Ranch High School communicated electronically with participating employers through computer bulletin boards and E-mail, exchanging information and ideas on classroom lessons and career-related resources. After receiving a school newsletter in the mail indicating that the MTP Flint students were learning about blueprint reading in their vocational class, one of the participating employers showed his students the different types of blueprints the company used.

Third parties sometimes helped facilitate information sharing between school and employer staff, and thereby the development of integrated classroom curricula and student-training plans. These third parties--staff from consulting firms, trade associations, or other organizations providing technical assistance--were often in a good position to foster communication, particularly when they worked with both employers and schools to design students' activities. For example, ProTech in Boston hired an education consulting firm

to organize, participate in, and develop products from teachers' visits to participating hospitals. After each visit, staff members from the consulting firm facilitated brainstorming sessions where the teachers came up with ways to modify their classroom curriculum to relate to tasks that students would perform or observe in the hospitals. The firm also worked with hospital staff members to develop case study projects that students completed primarily at the work site, but that were presented and graded at school. By carrying information about students' potential activities and abilities back and forth across settings--and structuring how to use the information--the consulting staff members were able to suggest ways of strengthening the connections between the classroom and work-site activities.

Most of the links forged between work-site and school activities occurred after startup, as a result of direct communications between school and employer staff about students' performance. After working with students and assessing their skills, employers occasionally discovered that the students could not perform a specific task. During subsequent contacts with school staff members, employers sometimes suggested strengthening or re-ordering parts of the classroom curriculum to develop specific skills before students were assigned to the work sites. In the MTP program, for example, one of the metalworking employers told teachers that students could only be assigned tasks involving the firm's Computer-Assisted Design (CAD) system if they took a CAD class at school. Another MTP student was assigned to a business class to work on telephone skills after her employer noted that she spoke too rapidly on the phone.

3. Characteristics of Partner Institutions and Settings

Many school-to-work programs report on the "cultural" and "environmental" differences between educators and employers, as well as between schools and workplaces. Attitudes, sensitivities, and workplace rules, expectations, and objectives are said to be quite dissimilar. Teachers are unfamiliar with the range of industries that exist in their local communities, including the characteristics of occupations and the relevant terminology and technology in the industries. Work-site staff members are unfamiliar with adolescent behavior and the curriculum requirements imposed by state or local regulations. According to

teachers and employer representatives, the lack of knowledge about each other's settings can often be a barrier to integration of school- and work-based learning.

To enhance their ability to design complementary activities for students, some programs developed explicit strategies to inform employer and school staff members about each other's institutions. The sites primarily relied on two strategies: (1) using consultants or third-party staff; and (2) asking teachers and employer staff members to train or observe each other.

Some sites relied on consultants to lead special training sessions. The work-site visits for ProTech teachers that a consulting firm conducted allowed teachers to identify specific work-site tasks or skills that might be incorporated into school curricula and also exposed them more generally to the terminology and environments of the hospitals. This exposure, it was hoped, would allow teachers to more readily develop occupationally relevant examples or lessons. In turn, employer staff members working with one of the ProTech Health Care schools participated in a special supervisor training that took place at the school. Supervisors took "classes," sitting in the same rooms and desks as students and teachers ordinarily would, with access to the same facilities and under the same conditions as a normal school day. Staff members from the Private Industry Council and another education consulting firm, as well as district and employer personnel, led classes on the role of supervisors, how to create and use training plans, and adolescent stages of development. In a focus group discussion, a few employers who participated in the training reported that they gained a new appreciation for and understanding of the school environment in which their partners operate.

In other sites, schools and employers exchanged information by visiting each other's facilities. Teachers and employers often possessed the critical knowledge the other needed. For example, in Tulsa's Craftsmanship 2000, work-site mentors attended students' vocational and academic classes every two weeks (at least initially) to learn about the classroom curricula and how teachers handled students in class.

Teachers, like their students, benefited from direct exposure to employers' work sites. Prior to these visits, many of the teachers had limited information about the industries, occupations, and tasks to which students were exposed at work sites. For example, Lycoming vocational teachers spent 25 days during the summer in machine shops, where they worked with students' mentors and interviewed the shops' chief executive officers. These experiences helped the teachers gain a detailed understanding of the specific tasks performed by employees, the skills required to perform these tasks, and alternative career paths within the industry. Key teachers in Scripps Ranch High School accompanied students on field trips to employer sites. The teachers reported gaining valuable insight into employer environments and options, which they discussed with their students during the short advisory period--a half-hour, four-day per week, "homeroom" alternative designed to accommodate career development and counseling activities.

B. INTEGRATION STRATEGIES PURSUED

Integration was pursued through incremental adaptations of both students' school and work-site activities, with most of the changes occurring in the school curriculum. In most sites, school staff members had a bigger stake in and more time to devote to integration, since they were ultimately responsible for the quality of students' entire learning experience. In addition, activities at the work sites in most of the demonstration programs were dictated (or at least affected by) firms' production demand or service delivery schedule. This made it more difficult to plan and implement special activities designed to coordinate with classroom curricula. Consequently, most of the systematic integration work was reflected in changes in the classroom curricula, instead of in students' work-site activities.[1]

A student activity in the school or work site could be adapted to relate to activities in the other setting in two ways. First, the activity could be changed to *use or build on* the knowledge students acquired in the other setting. Second, the activity could be modified explicitly *to prepare* students for activities that

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[1]Individual work-site staff members in some sites made ad hoc efforts to give students tasks or activities that related to students' school lessons, when the staff members were informed about them.

were expected to take place in the other setting. These two types of integration efforts were not mutually exclusive. For example, as a student practiced how to use a particular machine in the workplace, she could simultaneously draw on the knowledge she acquired in a vocational class and prepare for performing more sophisticated tasks on that equipment in the same vocational class.

The opportunities for integration activities largely depended on the kinds of knowledge that students were expected to use or acquire in the classroom or at work. The knowledge or skills (and thus the types of integration activities feasible) in turn depended on the kinds of courses and workplace experiences included in the program design. The demonstration programs' school and work-site activities generally emphasized one or more of six kinds of knowledge: (1) knowledge of careers and industries; (2) work readiness skills; (3) technical skills; (4) basic skills; (5) problem-solving skills; and (6) knowledge of social systems.[2] The demonstration sites undertook varied efforts to integrate activities that focused on each of these forms of knowledge, constrained by the types of school and work activities in which program participants were engaged.

1. Modifying School Curricula to Relate to Current and Future Work-Site Activities

The demonstration programs pursued different strategies for incorporating workplace tasks and skills into classroom learning. As noted earlier, the extent and type of integration that occurred at school were influenced by both the type of workplace experiences in which students were involved and courses in which students were clustered, if any. Both factors affected the knowledge students could gain from a school-based integration activity. When student participants were clustered only in a vocational course, technical skills (and, possibly, problem-solving competencies) were most likely to be emphasized. If students were grouped in both academic and vocational courses, the integration activities were likely to cover a broader range of skills and knowledge. Similarly, programs in which students were engaged only

[2]See Haimson and Silverberg 1995 for detailed definitions of each of these types of knowledge.

in occasional job-shadowing or workplace visits were more likely to implement integration activities that provide exposure to careers and industry than build technical skills. Some of the more common school-based integration strategies, designated by the types of skills and knowledge likely to be the product of those strategies, are discussed next.

a. Career Awareness Integration Activities

One common school-based integration approach was to use a school class or project to encourage students to reflect upon their work-site experiences and refine their career goals accordingly. Because the activities could be generic/general, but allow students to reflect on their individual and varying experiences, this strategy could be used even when students were not clustered either in school or at work sites. For example, to coordinate with job-shadowing visits, advisory teachers at Scripps Ranch High School asked students to prepare an essay describing several dimensions of their shadowing experiences. The teachers gave students a form listing questions to ask employer staff members during the work-site visit and issues to address in their written assignments. The essays were intended to describe both the tasks that employer staff members performed and the extent to which students were interested in careers in that industry. This activity was intended to promote careful consideration by students of the advantages and disadvantages of different occupations.

Because most of the demonstration programs focused on a particular industry or occupational cluster, program planners often assumed students had already made their most important career choice when they decided to enter the program. Nonetheless, even programs organized around an occupational theme could prepare students *in school* for more specific occupational- and program-related choices they would need to make in the future. As students enter the Craftsmanship 2000 metalworking program in 11th grade, they briefly visit several of the sponsoring employers and then, for a school assignment, write essays assessing the firms. After writing these essays, students are asked to state their preferences regarding the firm in which they want to complete their work-site training. Because they know that employer and

program staff members will review their essays before assigning them to a particular work site, students take the visits and essays seriously.

b. Work Readiness Integration Activities

One important lesson the demonstration sites learned was that many students were not familiar with appropriate workplace behavior. Examples of inappropriate student behavior at a work site included wearing improper clothes, being late for work, taking breaks whenever they wished, taking naps in front of manufacturing equipment while it was operating, and sleeping at the work site overnight without permission. In addition, students sometimes refrained from asking questions when they did not understand how to perform a task that they had been asked to carry out.

To address students' work readiness skill needs in school, some of the demonstration sites created a separate class that focused on helping students learn about the norms and behavioral rules of the workplace. For example, while they were completing summer internships, students participating in the Oakland academies met every two weeks to attend seminars that often featured work readiness issues. The seminars included discussions on, and examples of, how to behave at the work site; they also allowed students to share specific problems they were experiencing at their jobs.

Other sites incorporated work readiness material into students' regular vocational or academic classes. For example, the English teacher in the Illinois State Board of Education's (ISBE's) Senn Academy in Chicago developed assignments for her class on providing instructions, receiving customer orders, making introductions, and writing memos and resumes. In addition, grades in the math and English courses of this program were based, in part, on students' dress, punctuality, and teamwork. Similarly, advisory period teachers at Scripps Ranch High School coached students assigned to job-shadowing experiences on how to dress, get to the work site, and present themselves throughout the day. They also advised the students on what to do if they had to reschedule their job-shadowing appointments.

c. Technical Skill-Building Integration Activities

Before high school students could work in certain types of jobs, they sometimes needed to acquire specific technical skills. By training students in the classroom, programs were able to expand the range of tasks students performed at work; this increased their exposure to various work environments and their opportunities to practice specific techniques.

In some sites, vocational classes were already designed to prepare students for jobs in the industries in which they were placed. However, in a few cases, preimplementation meetings with employers led to further modifications of the technical curricula to ensure that students were prepared for work-site activities. For example, in Tulsa's Craftsmanship 2000 program, the regional technical center's vocational metalworking curriculum was expanded to incorporate several tasks or skills that employers felt would be expected of students while they were at the work site.

Some modifications to the technical curricula occurred during programs' planning phase; however, many others occurred after employers observed students at work and suggested ways to improve their preparation for work-site activities. Several students in the Toledo Private Industry Council program were assigned to jobs in dentists' offices but did not know the names of individual teeth. The dentists who employed these students convinced the school's vocational instructor to spend considerably more time on this topic.

After students completed work-site assignments, they were sometimes able to practice in school the technical skills they had developed in the workplace. While the regular science and vocational curriculum often provided such opportunities, some teachers sought to find additional ways to encourage students to practice or display technical skills. For example, a Rockford physics teacher allowed a student who received some training in a spring factory to demonstrate the physics of springs in class. This demonstration simultaneously strengthened the student's mastery of physics, his self-esteem, his appreciation of his work-site experience, and his presentation skills.

d. Basic Skill Development Integration Activities

Apart from students' weak work readiness skills, the skill gap most commonly identified by participating employers related to students' basic communication and math skills. Sometimes, this led to changes in programs' screening processes so that students who had poor academic grades were excluded from future cohorts entering the program. To avoid screening out those with poor past academic performance, some sites attempted to strengthen their school curriculum so that students could work on their basic skills after they were admitted to the program.

It was sometimes easier to enrich the vocational curriculum to emphasize basic skill instruction than it was to modify students' academic classes, largely because participants were more likely to be clustered in vocational courses. For example, despite MTP metalworking employers' complaints that students assigned to their work sites had weak math and writing skills, program staff members were unable to modify the students' academic curriculum. The students participating in the program were drawn from several high schools, had many different math and English teachers, and were in academic classes with many nonparticipants. Therefore, it was not practical to ask students' academic teachers to modify their lesson plans. Instead, because all of the students had the same vocational teachers, program staff members chose to incorporate many more math problems and writing assignments into the vocational curricula.

Even in programs in which participating students were clustered in both their academic and vocational classes, vocational instructors sometimes became involved in refining the basic skills curriculum. Vocational instructors sometimes had a clearer sense of employers' basic skill requirements and therefore could help academic teachers improve their instruction plans in the most relevant way. For example, the vocational teacher in Toledo helped the math teacher modify her curriculum to incorporate more of the trigonometry and measurement skills needed to perform metalworking tasks.

In other cases, academic teachers worked independently to respond to employers' suggestions regarding basic skill instruction. In Boston's ProTech program, a math teacher taught some students how

to convert to metric units to prepare them for work experiences in microbiology labs. Similarly, after employers in the Lycoming PYAP program complained that students could not use the firms' instruction manuals, an English teacher devoted class time to a discussion on how to read a machinist handbook.

e. Integrating Instruction on Problem Solving

Some of the work-site experiences provided students with opportunities to practice problem-solving skills--chances to define problems, develop and assess alternative solutions, and set priorities. Although students usually worked closely with employer staff members when dealing with such issues, these problem-solving tasks posed a significant challenge to many students. One of the main difficulties students faced in dealing with such problems was figuring out when and how to obtain guidance from others.

Some sites developed special school-based projects for students to enhance their problem-solving skills before they were placed in work-site activities. School staff members were interested in developing these assignments both to prepare students for their work-site activities and to be able to use contextual competency-based instruction. For example, in the Chicago ISBE metalworking program, before being assigned to a work site juniors were asked to build a windmill that could lift a weight a specified number of inches within the least amount of time. This project, which lasted two weeks, allowed each student to assume a different project-specific role (for example, project manager, accountant, engineer, equipment manager). The team had to draw a design, estimate materials and costs (including overhead), prepare a bid, sign a contract, order materials, compute paychecks (docked for tardiness), write checks, balance accounts, build the windmill and test it, and write daily reports documenting any problems they encountered. Student teams in the York PYAP used a similar process to build cranes, model cars, and an egg slide (designed to minimize the number of broken eggs).

Competitions that trade associations and student clubs sponsored provided some opportunities to practice both problem-solving skills and basic and technical skills that students were developing at work sites. For example, teachers in the Chicago ISBE program helped students compete in the annual Tooling

and Manufacturing Association contest to produce a metal part as precisely as possible and an essay describing their work on this task. The math teacher helped students hone their measurement skills, the English teacher helped students refine their technical-writing skills, and the metalworking teacher helped students with other technical skills.

f. Integration Activities for Understanding Social Systems

In programs in which students were clustered in their social studies or history classes, instructors tried to stimulate or take advantage of students' interest in an industry by reviewing related social issues. Social studies teachers were sometimes able to use students' work-site experiences as intellectual springboards to focus their attention on important social and economic topics. This strategy was employed most clearly in two of the PYAP sites. The social studies teacher in Lycoming developed curricula on the origins of metalworking occupations, reviewing, for example, the way a tinsmith's job evolved into that of a machinist. The class also studied the history of economic development in the Williamsport Valley, including why specific types of firms were attracted to the area. The York PYAP students went on a trip to the Smithsonian museum, where they searched for answers to questions specified in advance by their social studies teachers. For example, there were questions relating to the content of traditional apprenticeship contracts, the power source used in early machine shops, and the number of workers who were replaced by the original pin-making machine.

2. Structuring Work-Site Activities to Relate to School Curricula

Although the implementation of integration activities at a work site was much less common than at school, some demonstration programs did try to link school learning to workplace tasks. These links were usually stimulated by employer interest, but often required help from teachers or central staff. Like those at school, some integration activities at the work site were planned, while others were developed and implemented on an ad hoc basis.

In several sites, school and employer staff members designed work-site assignments, exercises, or projects that allowed students to build on the skills they were developing at school. For example, employer and school staff members in Tulsa's Craftsmanship 2000 program conceived of specific metalworking products that students could make during their summer workplace experience, drawing on the technical skills they had developed at school: Students built vice grips and hydraulic jacks from blueprints, using some of the equipment they had learned to operate in their machining class.

Work-site assignments can also be structured to allow students to apply or see the value of basic skills. The geometry teacher in the Rockford ISBE metalworking program, after shadowing metalworking employees himself one summer, developed brief math exercises that students were asked to perform during field trips to a metalworking firm. In one case, this teacher arranged for older student apprentices working in a firm to help younger students see how trigonometry can be used in calibrating the cutting angles of a lathe. The field visit occurred during the period when the younger students were learning trigonometry in class and heightened students' interest in this subject.

Some of the work-site projects allowed students to expand their knowledge in several different areas, each of which related to the school curricula. In Boston's ProTech, hospital staff members in several departments created imaginary patient cases for teams of students to diagnose. Each case included some hypothetical patient background, symptoms, and alternative diagnoses. Teams of students worked with a variety of medical staff members to determine how each of several departments in the hospital would have handled the case, then wrote up both their diagnoses and the diagnostic procedures they learned about. Some hospitals encouraged students to contact specific staff members in several departments; others centralized students' supervision in a single department, where staff members described procedures in other departments. The students' write-ups were reviewed by both teachers and work-site supervisors and presented orally at school. These assignments developed students' awareness of tasks performed in

different hospital departments, as well as their problem-solving, teamwork, writing, and health science skills.

On a spontaneous basis, students were sometimes encouraged to demonstrate techniques or concepts learned at school to employer staff members. After seeing that his mentor was unsure how to perform a metalworking task and was about to request assistance from an engineer, one student in the Rockford ISBE program demonstrated how the task could be completed using trigonometry. This experience allowed the student to appreciate the value of the knowledge he acquired at school, practice his communication skills, and improve his self-esteem.

C. ISSUES IN THE DEVELOPMENT OF INTEGRATION ACTIVITIES

The demonstration sites' experiences in developing activities that link students' classroom and work-site learning yielded some important implementation lessons. Several factors or issues appear to affect the extent and success of integration efforts:

- ***Staff visits to work sites serve a valuable function, with appropriate followup.*** Many school-to-work programs report on the "cultural" and "environmental" differences between educators and employers, as well as between schools and workplaces. Attitudes, sensitivities, and workplace rules, expectations, and objectives are said to be quite dissimilar in the two settings, and can often hinder integration of school- and work-based learning, according to teachers and employer representatives. Encouraging school staff members to spend time at relevant work sites is one way to overcome this barrier. By job shadowing an employee or rotating through different departments in a firm, teachers can gain information about the industries, occupations, and tasks to which students will be exposed at work sites. These visits do not generate integration activities on their own, however. Teachers need to incorporate terminology, skills, and tasks identified at the work site into classroom activities. In many sites, this followup to the work-site visits is not systematically implemented, partly because individual teachers are not always the best curriculum developers and may not know how to translate their workplace experiences into lesson plans. To make best use of staff development resources, school-to-work planners may want to consider training activities timed or structured to help teachers turn their visits into tangible curriculum products.

- ***Grouping participants in key classes facilitates the linking of school and work-site activities.*** Clustering allows academic and vocational courses to link work-site tasks to the teaching of theoretical concepts and technical skills, as well as to development of other forms of knowledge. If participating students are not grouped in key courses at school, they may be exposed generally to the world of work through their school curricula; however, the

application of academic concepts and technical skills is unlikely to focus on the program's target occupation and the students' experiences at the workplace. To make the school curricula more directly relevant to students' workplace activity, teachers must make a concerted effort to identify and incorporate relevant tasks and competencies into instruction. If students in a teacher's class have different occupational interests and are placed in unrelated industries for their workplace activity, tailoring applied academic curricula becomes more difficult.

- ***Linking school and work-site activities is somewhat easier when students are assigned to a moderate number of employers.*** The complexity of any coordination effort is driven in part by the number of actors involved. In the demonstration, smaller numbers of employers allowed communication between teachers and employers to be more frequent and informal. In general, it was easier to organize group meetings of school and employer staff members when there were fewer participating employers, limiting the number of individuals whose scheduling constraints needed to be accommodated. Moreover, when large numbers of employers were involved, adjusting school curricula and instruction to workplace activity required accommodation to a much more complicated set of partners.

- ***To fully coordinate classroom and workplace activities, key partners may need to devote substantial staff resources to the integration effort.*** Ad hoc activities did not require significant planning or information sharing between teachers and employer staff members, but planned integration activities take time to put in place. Teachers need to learn about employers' industries and operations. Employer staff members need to be briefed on students' classroom curriculum. Teachers and employers must find ways to connect classroom and work-site learning, and then develop lesson plans or training plans that reflect the links. After these plans have been discussed, finalized, and implemented, staff members are needed to monitor students' progress to determine whether or not the activities should be modified further.

- ***Technology can be used in resourceful ways to foster integration.*** Because information sharing between teachers and employer staff members is critical to planning and implementing most integration activities, technology that facilitates communication can both improve integration opportunities and reduce staff resource use. Having telephones--quite simple technology--in classrooms can help mitigate employer complaints that they cannot reach teachers through a central office telephone because school staff members are frequently in or between classes. Fax machines can compensate for lack of classroom phones and time to meet with workplace personnel. They allow employer and school staff members to leave detailed messages for each other (not easily accomplished through a school office receptionist) and to provide and review documents (including lesson plans or work-site training modules) quickly. Teachers in the Lycoming PYAP faxed lesson plans each week to participating employers to encourage work-site supervisors to assign tasks that build on skills students are learning in school. Similarly, computer E-mail can transmit information between work-site staff members and teachers immediately and interactively. Teachers at Scripps Ranch High School, and their students, have used computer bulletin boards and direct E-mail to exchange ideas about work-related classroom lessons, career-related resources to use in the classroom, and opportunities for job shadowing.

- ***Staff turnover can be detrimental to integration of school- and work-based learning.*** Modifications in school and work-site activities generally occur incrementally over an extended period of time. Sustained links are formed largely through personal connections between school or employer staff members, through face-to-face meetings or other forms of communication. Integration activities that are developed are often specific to the particular interests, work assignments, or instructional approaches of individual teachers or supervisors. When employers, supervisors, or teachers stop participating in a school-to-work program, some of the institutional knowledge they accumulated is lost and some of the information they provided to their colleagues becomes less relevant. Moreover, teacher or work-site supervisor replacements require additional time to learn about integration and to become familiar with other partners in the school-to-work program.

- ***Integration requires some flexibility on the part of schools and employers.*** School staff members may have difficulty being flexible because district or school policies constrain students' schedules or the types of classes they must complete in order to graduate. Work-site activities can be limited--particularly at the sites of smaller employers--by the tasks that can feasibly be performed by students with limited skills or maturity. Flexibility is important, in part, because of uncertainty about whether planned work-site activities can be implemented. Students' work-site activities often have to be modified as a result of unexpected factors such as fluctuations in customer demands, employee attrition, concerns voiced by firms' adult employees, and changes in employers' production processes. Moreover, like students, staff members learn by doing. On the basis of accumulated experience and communication, school and employer staff members frequently develop new insights about the types of integration activities that are feasible and appropriate. When staff members experiment with different approaches, they need to be able to retain successful innovations and quickly dismiss unsuccessful ones.

VI. PROMOTING SUCCESSFUL POSTSECONDARY TRANSITIONS

The main goal of school-to-work reforms is to promote students' successful entry into career-oriented employment. One approach to improving the school-to-work transition of young people involves encouraging them to pursue advanced training and education at the postsecondary level. Employment prospects for those with higher-level skills and credentials are significantly better than for those with only a high school degree. However, postsecondary education is not necessary for some career options. In addition, some students prefer (for a variety of reasons) to enter full-time jobs directly after high school.

The demonstration guidelines encouraged school-to-work programs to facilitate students' entry into postsecondary educational programs, as well as into registered apprenticeships and permanent employment. Although the U.S. Department of Labor implicitly placed higher priority on helping students attain postsecondary credentials, it also acknowledged the likelihood that some students would enter the workforce directly after high school graduation. The grantees had discretion in deciding which post-high-school outcomes to emphasize in their program models, if any, and what activities would be adopted to help students achieve those outcomes. Most initially stated a desire to implement a "2 + 2" school-to-work program, but understanding of this concept varied significantly; only one-third of the demonstration programs operationalized a 2 + 2 design as it is traditionally interpreted.

This chapter examines the implementation and potential outcomes of several forms of linkages between students' secondary and postsecondary experiences. Program strategies to aid students in making transitions to full-time permanent employment are different from those used to aid them in progressing to postsecondary education or training. In Section A, we discuss job placement assistance provided by the demonstration programs. In Section B, we discuss education and training linkages, including the factors that affect implementation. In Section C, we document the actual postsecondary transitions of

program participants--into both employment and further education or training. Finally, in Section D, we summarize salient issues in developing effective secondary-postsecondary linkages.

A. JOB PLACEMENT ASSISTANCE

Entry into career-focused, full-time employment after high school may be an appropriate outcome for students in some school-to-work programs. Not all occupations require postsecondary education or credentials for entry-level jobs. Moreover, some students may prefer to postpone higher education or advanced training until they have fully defined their chosen career pathway and selected an occupational specialty. Students seeking full-time jobs right out of high school often need assistance in obtaining and evaluating workplace positions.

Helping students find permanent employment after high school or completion of the school-to-work program (if different) has not been a priority in the demonstration sites. None of the programs has a structured job placement system in place, nor have any indicated an intention to establish one in the near future. The demonstration programs have not emphasized this component for several reasons. First, some programs are still relatively new, and participating students have only just begun to graduate from them; most program resources have been devoted to ensuring that the basic and earlier components are implemented as fully as possible. Second, some sites consider transition to postsecondary education or training as the primary program objective, so finding students part-time jobs to complement college-going is a more minor concern. Third, some program staff members believe that a program-centered job placement system would duplicate existing services to which the students already have access, such as placement services at the vocational schools and the community colleges. Finally, many programs believe that students' experiences in the program provide them with advantages in the job market, reducing or eliminating a need for extra job-seeking assistance.

The perceived job market advantages of program participation derive from the presumed higher skill levels, better work experience, and wider contacts with employers in the target industry. Informal and

formal arrangements with employer partners are largely the basis for optimism among program staff about students' permanent employment prospects. No employers guarantee participating students jobs at the end of the program. In many demonstration sites, however, employers view the program as an opportunity to recruit new employees. Focus group discussions with employer representatives and program staff members suggest that smaller firms, in particular, often consider participation in the program as a way to identify, train, and evaluate potential job candidates. Once employers have invested training resources in a student, they are more likely to hire that student if the student is willing to stay. The Lycoming Pennsylvania Youth Apprenticeship Program (PYAP) estimates that at least 30 percent of its employers are participating primarily as a way to seek job candidates. Many employers in the Rockford Illinois State Board of Education (ISBE) program, where need for skilled metalworkers is high, have hired students as permanent, full-time staff out of high school and are encouraging them to pursue postsecondary training at the same time. These motives among employers in some programs translate into higher rates of permanent hiring of student trainees (see Section C).

School-to-work employer partners also give preference in hiring to program graduates for reasons other than the recouping of individual firms' training investment. Program graduates are "a known quantity." Participating employers are familiar with the program's entrance standards, the program curriculum, and the quality of students and the training they receive. Often, the employers have had input into aspects of the program. Some employers report dissatisfaction with the alternative hiring pool--regular high school graduates (including those from cooperative education programs). Thus, some employers are willing to hire school-to-work participants for permanent positions even if the students had their training and work experience at a different participating firm.

Employer confidence in the outcomes of student participation has resulted in special efforts to hire program graduates. In two of the sites, large employers--Siemens and General Motors (GM)--have stated plans to hire program graduates if the firms have positions available. Informally, participating firms in the

Craftsmanship 2000 and Middle Georgia Aerospace programs are likely to give program participants hiring priority. Employers in ProTech also have indicated a desire to employ program graduates, if possible; when the first graduate of ProTech Health Care sought permanent employment, the participating hospitals worked together to find her a position. Although GM had committed itself to filling openings only for registered apprentices, it offered production-level jobs to all of the students who passed its apprenticeship test.

The extent to which participating employers can maintain these hiring preferences is unclear, however. So far, most programs have graduated only one or two cohorts of student participants--relatively small numbers of job seekers. Many firms that pledged hiring priority for program graduates currently are experiencing hiring freezes and layoffs. Although some have been able to offer permanent positions to school-to-work graduates even with these limitations, there is some fear among program staff that this situation may not continue.

B. LINKAGES TO POSTSECONDARY EDUCATION AND TRAINING

Creating pathways that facilitate students' transition from secondary education to postsecondary education and training is key to achieving successful school-to-work outcomes. Technological transformations in the economy have raised skill requirements for many jobs, placing a premium on workers with a range of competencies and the ability to reason, make decisions, and learn quickly. Although the foundation for these skills is set during high school, many students need to acquire more-advanced academic and/or technical competencies at the postsecondary level in order to achieve their career objectives.

The demonstration sites have had little information available about effective or appropriate connections between secondary and postsecondary experiences in school-to-work programs. Perhaps as a result, the programs have implemented a range of activities even more diverse than their approaches to school- and work-based learning. Over the course of the demonstration period, we have attempted to

define what is meant by the term "linkage" in this context and to characterize activities that help students make successful transitions to post-high-school educational and training options.

1. Types of Linkages

Three broad categories of linkages have been observed in the demonstration programs (Table VI.1). The most traditional and commonly perceived form associated with school-to-work programs is ***institutional linkages***--those that directly connect educational and training institutions or programs. These connections can ease the transfer of students to college or registered apprenticeships and prevent delays and duplication of course work and credit. In some demonstration sites, community colleges, union locals, and secondary schools were involved in aligning secondary and postsecondary curricula and/or in negotiating articulation agreements that allow program participants to earn college credit for some high school course work and work experience. Where implemented, individual articulation agreements were developed with, at most, two postsecondary institutions and were targeted to facilitate students' entry into a particular occupational program at the postsecondary level. The postsecondary program was always specific to the demonstration site's target occupation and had been developed with considerable input from participating employers--sometimes (as in the Seminole County/Siemens program) even customized to the specific needs of the firms.

Articulation agreements in the demonstration sites are of various types. Arrangements that focus on awarding college credits for vocational and/or academic courses, such as those in the Middle Georgia Aerospace program, are relatively common and have been stimulated in the last several years by Tech-Prep implementation. (In most of the demonstration programs with articulation agreements, the agreements were developed by participating schools as part of Tech-Prep initiatives prior to the formal establishment of the school-to-work program.) Agreements that award credit for students' secondary work experience, as were negotiated in the Craftsmanship 2000, MechTech, Inc., and Rockford ISBE programs, are much less prevalent. In several sites, agreements were reached in which work experience

TABLE VI.I

SECONDARY-POSTSECONDARY LINKAGES IMPLEMENTED
SCHOOL YEAR (SY) 1994-1995

Grantee Name/Project Name	Institutional		Motivational/Supportive			Incentive-Oriented		
	Articulation Agreements	Curriculum Alignment	Postsecondary Component Widely Promoted	Transition Facilitation Activities	Program Contact After High School	Postsecondary Work Experience	Employer Tuition Assistance	Employment Priority for Postsecondary Completers
Boston Private Industry Council								
ProTech Health Care (Health Care)			X	X	X	X	X[a]	
ProTech Financial Services (Finance)			X	X	X			
Craftsmanship 2000 (Metalworking)	X		X	X	X	X	X[a]	X
Gwinnett Youth Apprenticeship Program (No Occupational Focus)								
Illinois State Board of Education (ISBE)								
Rockford (Metalworking)	X	X	X	X	X	X	X[a]	X
Chicago (Metalworking)								
Manufacturing Technology Partnership (Manufacturing)		X	X	X	X		X	X
MechTech, Inc. (Metalworking/Machining)	X					X	X[a]	
Middle Georgia Aerospace (Aerospace Technology)	X	X	X	X				X
Pennsylvania Youth Apprenticeship Program								
Lycoming (Metalworking)				X			X	
York (Metalworking)				X	X		X	
Philadelphia (Metalworking)								
OaklandWorks (Media, Computers, Law and Government, Health and Bioscience)								
Sears/Davea (Appliance Repair)								
Scripps Ranch High School (No Occupational Focus)				X				
Seminole County/Siemens (Electronics/Telecommunications)	X	X	X		X	X	X	X
Toledo Private Industry Council (Industrial Automation and Robotics, Medical and Dental Assisting, Carpentry, Architecture and Drafting, Office Skills)	X[b]							
Workforce LA Youth Academics (No Occupational Focus)				X	X	X		

[a] Individually negotiated with each employer and student

[b] Agreement with carpenter's union

and/or course work during high school count toward on-the-job training hours or credit in a registered apprenticeship program.

Although articulation agreements often are considered the primary form of secondary-postsecondary linkage, ***systematic activities that provide motivation and support*** for students to enter postsecondary education and training are much more common among the demonstration programs. School systems promote the virtues of postsecondary education and guidance counselors provide routine assistance for students who plan to enter college. However, many demonstration programs supplement these routine efforts with activities designed to help students formulate college or apprenticeship plans, select and apply to an appropriate postsecondary institution, and remain committed to their educational goals. For example, sites that include postsecondary education or training in their program model (that is, have a "postsecondary component") heavily promote this component in their recruiting materials and orientation sessions. From the beginning, student participants are told that the program is four years long, and that they are expected to enter and complete the advanced education/training. Moreover, these sites identify the specific community college (or two) and postsecondary program that are part of the model, so students are fully aware of the planned educational pathway.

Some programs link secondary and postsecondary experiences by maintaining contact with students after they enter postsecondary education or training. Program-related staff members monitor students' progress, intervene to resolve problems, and sometimes provide support and encouragement. ProTech, for example, has two college counselors responsible for meeting with participants in college on a bimonthly basis, obtaining and reviewing their grades, and acting as advocates for them with deans and faculty. This is by far the most intensive of such efforts, however.

Other activities that help students overcome emotional and informational barriers to postsecondary education are another important type of motivational or support linkage. Activities that familiarize students with the college application process, college campus or apprenticeship environments, and expectations for

college-level work can provide students with the self-confidence and motivation to enroll in a postsecondary program. A few demonstration programs help students obtain and complete college application and financial aid forms. Others have local college counselors or faculty visit students in high school to describe college offerings, particularly within the programs' target career area. Most of the demonstration programs take students to visit nearby college campuses, a relatively easy activity when the program has formal linkages with a specific postsecondary institution. Again, ProTech has chosen to devote substantial resources to these transition activities. The program employs career counselors who meet with junior and senior participants periodically, in groups and individually, to identify career interests (including those other than the program's target occupation) and to undertake the activities described previously. Students also take a college readiness test and have the option of taking courses at one of two local two-or four-year colleges while still in high school. Students in the Middle Georgia Aerospace and Rockford ISBE programs also take courses at postsecondary institutions during high school--partly so that they can become familiar with the campus environment.

The third broad type of secondary-postsecondary linkages are ***employer incentives.*** Continuation in the program work-site placement, postsecondary tuition assistance, and priority in permanent hiring are commitments employers can and do make in some demonstration programs for students who enter and/or complete postsecondary education or training. These are offered as inducements for students to seek advanced training but are always contingent on students' good performance during the high school years.

Several factors appear to determine the extent to which school-to-work programs adopt specific types of secondary-postsecondary linkages. First, the better-defined the career focus of the program, the easier it is to develop and implement most forms of linkages. Such programs are able to identify local postsecondary education or training institutions that offer strong programs in the targeted occupation and to focus on developing one or a few relevant articulation agreements. Programs with a defined target occupation are more likely to have students learning job skills in vocational courses and at the work site,

making it more likely that firms see value in continuing to employ them after high school and offering them permanent positions after they earn postsecondary credentials. In contrast, programs with no career focus have little direction for negotiating articulation agreements; the general work experience opportunities provided by these programs are less likely to generate strong employer commitments and incentives.

The type of occupation targeted by the program can also affect secondary-postsecondary linkages. Some entry-level jobs do not require postsecondary training. For example, some manufacturing firms have permanent career-oriented positions that can be filled by trained high school graduates, who can then acquire advanced training as needed. Other manufacturing firms seek skilled tradespeople who have advanced training and credentials, including journey person status. Similarly, many allied health positions require a year or two of postsecondary training to receive industry certification. Labor needs of local employers have a significant influence on the occupational focus of the school-to-work programs and the likelihood that postsecondary education or training will be emphasized.

Perhaps more important, the characteristics of the students served by the programs determine whether and which linkages are implemented. Programs with highly motivated and high-achieving students who enroll with plans to attend college may not need certain types of linkages or assistance (for example, help in completing application and financial aid forms). In contrast, disadvantaged students who might not otherwise have focused on college or apprenticeships immediately after high school need more assistance in making these transitions.

Sorting out the relative effectiveness of different types of linkages is difficult, but some general patterns are evident. Although articulation agreements are an important part of some programs' postsecondary component, their ability to motivate students to enter college or apprenticeships seems limited. Students sometimes appreciate the added benefit of the option to complete a postsecondary program in less time, as reported in the Craftsmanship 2000 and Middle Georgia Aerospace sites, but this benefit is not the primary reason students attend or plan to attend postsecondary institutions. In a few sites

with articulation agreements, students fail to take advantage of them. For example, until school year 1994-1995, no participant in the Seminole County/Siemens program had opted to take the proficiency test required for articulated college credit in electronics; that year, only a small proportion of students took the test. Students in programs with articulation agreements most often attend the designated postsecondary institution simply because it has been widely promoted as part of the program and because the students understand the value of advanced training.

Transition support activities probably affect students, depending on their backgrounds. Disadvantaged students appear to benefit from the extra attention, guidance, encouragement, and followup about college applications, campus visits, and selections provided by program staff. Particularly in programs such as ProTech, which inner-city students often enter with little career and educational direction, these types of individualized support activities can make a substantial difference in rates of postsecondary education transitions. These activities seem to have less effect on other types of students, who either enter the programs with postsecondary plans or adopt the programs' postsecondary pathway for reasons other than campus visits and help with applications.

Incentives provided by employers may well have the greatest impact on students. Students in several of the demonstration programs reported that help with postsecondary tuition was a primary reason for their enrollment in the program. Others, particularly those in programs with well-known, large employers, indicated that permanent employment with these firms was one goal of participation. In a few programs, the promise of continuing in the program work-site placements influenced students' ability to pay for college. In the Workforce LA Youth Academies, some previously at-risk students who remained in the program until high school graduation were so enthusiastic about their jobs with the city government that they agreed to enroll in local community college programs in order to keep those jobs. Because of the significant commitment of resources required, however, these types of employer incentives are unlikely to be available in most school-to-work programs that serve large numbers of students.

2. Postsecondary Components Included in Program Models

Implementing arrangements or activities that encourage students to pursue postsecondary education or training is quite different from including a postsecondary component in the program model. The extent to which a school-to-work program can be considered to have a postsecondary component depends on which of the linkages are being implemented and how. Although all can affect postsecondary outcomes, some merely provide motivation and support, while others actually institutionalize a pathway from high school to college programs or registered apprenticeships. We might expect that programs with a formal postsecondary component would have greater success in promoting postsecondary educational transitions.

A definition for a postsecondary component was formulated by the evaluation team on the basis of observation of the demonstration sites. To be characterized as having a postsecondary component, a school-to-work program should include secondary-postsecondary linkages as a routine part of core program activities--that is, they should be available to all or most program participants in a systematic manner instead of on an ad hoc basis. In addition, a combination of several types of linkages signal a formal postsecondary component:

- Program-related workplace experience during the postsecondary years--usually, a continuation of the earlier job
- Ongoing contact by program staff with participants after high school graduation
- Articulation agreement

According to this definition, 7 of the 15 demonstration grantees are viewed as having such a component.

Not all of the demonstration programs might agree with this definition, however. As noted earlier, most of the demonstration grantees initially reported planning to include a postsecondary component. Some sites maintain that they are implementing this component, although their own definition is more limited. A few sites believe that, if participating employers occasionally hire graduating students for permanent employment, those students are still "in the program" and the program has a postsecondary

component. Under our definition, this would be an important and positive program outcome but would not, by itself, constitute a postsecondary component. Other sites report the existence of articulation agreements (related or unrelated to the program's target occupation) as proof of a postsecondary feature, despite the lack of knowledge and/or use of these agreements by demonstration participants.

C. STUDENTS' POSTSECONDARY OUTCOMES

The documented postsecondary outcomes of demonstration participants provide one indicator of the effectiveness of postsecondary components and other linkages. These outcomes cannot be examined in all sites, however. Some programs began enrolling participants too recently to be able to observe postsecondary transitions. Some did not provide outcome data. However, for most of the demonstration programs that enrolled a cohort of students in fall 1992, we can assess the extent to which participants who completed their senior year in the program were employed after high school and entered or planned to enter college/advanced training.[1]

In most programs, most of the participants who completed their senior year planned to continue their education or training beyond high school, regardless of whether the school-to-work programs themselves had postsecondary education components. As shown in Table VI.2, the number of seniors who planned to enter college or training was more than 80 percent in many programs--ProTech Health Care, Rockford ISBE, Manufacturing Technology Partnership (MTP), Lycoming and Montgomery PYAPs, and Toledo Private Industry Council--and 50 percent or higher in all but two of the programs--York PYAP and Seminole County/Siemens. Relatively high rates of postsecondary education or training occurred even in sites that have no postsecondary component, including two of the PYAPs and the Gwinnett Youth Apprenticeship Program. Most (but not all) of the sites compare favorably with the national average, more than 60 percent of high school graduates attend a postsecondary institution within two years (National

[1]All participants who completed senior year in the school-to-work programs graduated from high school.

TABLE VI.2

OUTCOMES FOR STUDENTS WHO COMPLETED SENIOR YEAR IN THE PROGRAM
(Fall 1992 Cohort)

Grantee Name/Project Name	Number of Senior Completers	Program Has Post-High-School Component	Percentage of Students:				
				Employed After High School			
			Entered/Planned to Enter College or Training	Total	In Program Work-Site Placement	Other Job	Outcome Unknown
ProTech Health Care*	38	Yes	97.4	97.4	92.1	5.3	0.0
Craftsmanship 2000	14	Yes	71.4	78.6	78.6	0.0	21.4
Gwinnett Youth Apprenticeship Program*	38	No	65.8	23.7	0.0	23.7	18.4
Rockford ISBE	10	Yes	80.0	40.0	40.0	0.0	10.0
Chicago ISBE	20	No	55.0	80.0	5.0	75.0	5.0
Manufacturing Technology Partnership	40	Yes	85.3	92.7	92.7	0.0	4.9
Pennsylvania Youth Apprenticeship Program							
Lycoming	11	No	90.9	9.1	9.1	0.0	9.1
Montgomery	14	No	100.0	85.7	64.3	21.4	0.0
Philadelphia	8	No	62.5	75.0	75.0	0.0	12.5
Pittsburgh	2	No	50.0	100.0	100.0	0.0	0.0
York	15	No	33.3	66.7	40.0	26.7	13.3
Seminole County/Siemens	11	Yes	45.5	90.9	36.4	54.5	9.1
Toledo Private Industry Council*	11	No	72.7	90.9	72.7	18.2	0.0

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

NOTE: The percentages can sum to more than 100, because some students continued both their schooling and employment.

*Fall 1991 cohort data are reported for ProTech Health Care, and fall 1993 data are reported for the Gwinnett Youth Apprenticeship Program and Toledo Private Industry Council.

Center for Education Statistics 1992). Since most of the demonstration participants' transitions were observed only within a year of graduation, however, proportions in some sites may exceed the national average after an additional year.

Differences in the rates of postsecondary education transitions are probably due mostly to the characteristics of participating students, but program features such as secondary-postsecondary linkages are inextricably related to the types of students. For example, some of the programs that enroll disadvantaged students (Chicago ISBE and Philadelphia PYAP) have low percentages of students entering college/advanced training. These programs have low entry standards; they also do not have postsecondary components, possibly because of concerns about the level of preparedness of student participants. These programs, as well as the Seminole County/Siemens and Toledo Private Industry Council sites, enroll primarily vocational students, who generally do not pursue postsecondary credentials at the same rate as other groups of students. In contrast, most of the other sites recruit across a broader and more advantaged pool of students. Although both the Seminole County/Siemens and the Toledo Private Industry Council programs ostensibly select high-achieving students from the vocational pool, the Siemens program was less able to do so. Program features can compensate for or support lower-achieving students. For example, MTP heavily promotes its postsecondary education component and, for the fall 1992 cohort, arranged to have the community college partners pay for participants' tuition. The high rates of postsecondary education entries observed in ProTech, in contrast to much lower rates for Boston students in general, are undoubtedly related both to the strong transition assistance provided by program staff and the fact that the senior completers are a relatively select group of students.

The demonstration programs also experienced relatively high rates of post-high-school employment. In most of the programs, many senior participants (including those who were planning to attend college or training) were in jobs after graduation. Employment rates in several sites are high, relative to the national average. About half of all high school graduates enroll in postsecondary institutions within six

months of graduation, and more than 60 percent of graduates not enrolled in postsecondary institutions are working full- or part-time (National Center for Education Statistics 1992).

In many sites (ProTech, Craftsmanship 2000, Rockford ISBE, and MTP), employment opportunities were continuations of the programs' work-site placement and were part of the program model design. For example, 97 percent of the seniors in ProTech Health Care continued with both their education and their jobs, and most of the jobs (92 of the 97 percent) were positions with participating employers. Only in the Chicago ISBE and Seminole County/Siemens programs did substantial numbers of students work for new employers. One measure of the relative success of the PYAP sites is the high proportion of students who were employed by their sponsor firm after high school; none of the sites requires employers to maintain students in positions after senior year, but many firms hired students for permanent positions.

D. ISSUES AFFECTING THE DEVELOPMENT OF SECONDARY-POSTSECONDARY LINKAGES

Promoting successful postsecondary transitions is a goal of most of the demonstration programs. However, they vary in the types of outcomes emphasized and the activities implemented to help students achieve these outcomes. The demonstration experience suggests several lessons about the important issues that can foster or impede effective development of secondary-postsecondary linkages:

- ***Job placement assistance is not likely to be a priority for school-to-work implementation.*** The demonstration programs have not emphasized this component, and there are several reasons why these and other school-to-work initiatives are unlikely to do so. First, most program resources are devoted to ensuring that the basic and earlier components are implemented as fully as possible. Second, some sites consider transition to and completion of postsecondary education or training as the primary program objective, so finding students part-time jobs to complement college-going is a more minor concern. Third, some program staff members may believe that a program-centered job placement system would duplicate existing services to which the students already have access, such as placement services at the vocational schools and the community colleges. Finally, many programs believe that students' experiences in the program provide them with advantages in the job market, reducing or eliminating a need for extra job-seeking assistance.

- ***The types of secondary-postsecondary linkages adopted depend primarily on the target occupation and the characteristics of participants.*** Three types of linkages promote

postsecondary transitions: (1) institutional; (2) motivational/supportive; and (3) incentive-oriented. The better-defined the career focus of the program, the easier it is to develop and implement most forms of linkages. Moreover, the type of occupation targeted by the program can also affect implementation of secondary-postsecondary linkages. Some entry-level jobs do not require postsecondary training, for example. Perhaps more important, the characteristics of students served by the programs determine whether and which linkages are implemented. Programs with highly motivated and high-achieving students who enroll with plans to attend college may not need certain types of linkages or assistance. On the other hand, disadvantaged students who might not otherwise focus on college or apprenticeships immediately after high school need more assistance in making these transitions.

- ***Employer incentives have a relatively strong influence on students' postsecondary plans.*** Commitment by employers that guarantee continuation in the program work-site placement, postsecondary tuition assistance, and priority in permanent hiring after postsecondary program completion seem to be strong factors in students' decisions both to enroll in school-to-work programs and to enter and complete relevant postsecondary education or training. In contrast, articulation agreements appear to have less effect on students' postsecondary plans. Both types of linkages may be challenging to implement in an expanded school-to-work system, because developing them is likely to require definition of a relatively narrow target occupation or set of occupations.

- ***Understanding of program features that constitute a "postsecondary component" varies.*** Implementing arrangements or activities that encourage students to pursue postsecondary education or training is quite different from including a postsecondary component in the program model. School-to-work programs define a postsecondary component in different ways. In some programs, the designated activities are a routine part of core program activities; in others, they are only ad hoc. For example, the hiring of a student by a program employer is viewed in some programs as evidence of a postsecondary component rather than as a program outcome.

VII. GUIDING, COUNSELING, AND SUPPORTING SCHOOL-TO-WORK PARTICIPANTS

Career guidance and other forms of counseling and support have increasingly become important components of school-to-work initiatives. During the initial stages of the demonstration, this element received relatively less attention from federal officials and practitioners than did other school- and work-based components. The demonstration programs were not expected to implement broad systems of career exposure and support for students, as is promoted by the new school-to-work legislation, but rather to implement stand-alone, skill-intensive programs beginning in 11th grade. Most of the demonstration program models expect participants to have already selected a career goal and to make choices that affect their high school courses and possibly their postsecondary education options. In many of the sites, students must make a real commitment to the program and (theoretically) to the target occupation, because they are asked to attend a school facility other than their own, give up after-school activities, maintain a certain grade point average (GPA), and take more-challenging courses. However, program experiences with high rates of student dropout and other policy concerns indicated that, to be successful in a youth apprenticeship program, many students need career guidance and other forms of counseling during participation in (and even before entering) such a program. These program experiences ultimately led to a higher priority for this component in the School-to-Work Opportunities Act (STWOA).

In this chapter, we examine the circumstances under which the demonstration programs offered students guidance and support to help them make these choices, stay motivated, and strive for success. We discuss counseling on career issues (Section A), academic achievement (Section B), and personal problems (Section C). In Section D, we outline the salient issues relating to implementation of guidance and support activities.

A. HELPING STUDENTS MAKE CAREER CHOICES

Although a school-to-work *system* ideally helps students identify and prepare for a career, school-to-work *programs*, particularly youth apprenticeship programs, are more likely to emphasize career preparation than broad career exposure. Most school-to-work programs prepare students for a particular occupation or career. Program planners implicitly assume that students have already made career selections when they decide to enroll in a specific program. Thus, many school-to-work programs, including those in the demonstration, do not incorporate a well-defined career development component into program activities, nor do they have one that serves only a narrow occupational cluster.

All school-to-work programs provide some career development opportunities. Exposing students to even one occupation at a work site and providing some occupation-specific examples in school-based learning activities can help students determine if that occupation is appropriate for them. Vocational courses can play a similar role in giving students some exposure to the types of skills and environments connected to particular occupations. Even students who exit a program because of lack of interest in the career have benefited because they have learned what they do *not* want to do. Moreover, many of the demonstration programs encourage employers to let students visit or work in several departments or shops within the firm. In the Manufacturing Technology Partnership (MTP) program, for example, students in training at General Motors (GM) rotate through mentors with different specialties (welding, blueprint reading, design). In the ProTech programs, students tour and observe diverse departments (for example, medical records and a microbiology lab) before being assigned to a particular job. These exposure activities are most often distributed over a relatively limited set of departments or occupations, however, instead of over a range of different career areas.

Many school-to-work planners count on the availability of career development activities or information sessions before or outside of the school-to-work program. Schools participating in some of the demonstration programs provided career counseling or limited exposure activities in middle school or early

high school years to help students begin to identify occupational interests. Many of the schools conduct career days, invite guest speakers from the business community, or have students complete interest inventories and ability assessments. Through Tech-Prep initiatives and the introduction of applied academics, schools include some classes on employability skills--including writing resumes and interviewing techniques--and may provide limited information on options in broadly defined target occupations.

These early career guidance activities were not always successful in helping students select and follow a real occupational interest. In focus group discussions, most students indicated that they had little prior knowledge of the programs' target occupation and/or aspirations to careers in different fields when they applied. Although some students also reported being "turned on" to the target occupation through participation in the program (or at least to having increasing interest in that occupation), students did not always perceive entry into one of the demonstration programs as a commitment to a career pathway.

The lack of or limited career development experiences prior to entry into a school-to-work program can have negative consequences for the program and for the students. Many of the demonstration programs experienced high rates of dropping out in the early years of operation due to students' lack of interest in the target occupation. Employer partners in many programs report participating in order to expand the pool of qualified entry-level workers in their industry. Programs with a 2 + 2 design often request that employer partners pledge to provide work-based learning for the full four years. When students abandon the program for lack of interest in the occupation, employers lose their initial training investment. If this happens on a consistent basis, participating employers may be less enthusiastic about their commitment to the program, and recruitment of new employers may be more difficult. GM, for example, was concerned because more than one-third of its MTP youth apprentices were leaving the program to pursue engineering or other careers, instead of the skilled trades that were the focus of the program. If opportunity costs are considered, student participants who are not interested in the target

occupation may also be at a disadvantage; their time may have been more efficiently spent building skills and observing the workplace environment in occupational areas that more closely correspond to their interests. Effective career development activities prior to program entry have the potential to increase student retention in the target occupation, enhance employer satisfaction with the program, and improve more students' career preparation.

Without preprogram systematic career development activities, staff most commonly implemented two approaches to try to ensure program participants were at least better informed about the target occupation.[1] First, several of the programs--usually at employers' request--added new screening activities that require students to demonstrate some knowledge of and interest in the target occupation. Second, programs tried to provide more-detailed information about the target occupations during orientation sessions and in recruiting materials. For example, in its second year of operation, Craftsmanship 2000 began to include more exposure to the field of metalworking during an orientation at the Tulsa Technology Center. Parents and students were invited to tour the metalworking shop at the center, and teachers and industry representatives were available to answer questions. This approach was implemented specifically to overcome inaccurate perceptions and expectations about metalworking careers held by students and their parents the previous year and to improve participant retention rates.

Some programs and employers do feel their purpose is to provide students with more career exposure. Instead of expecting students to make a commitment to a particular career pathway, these initiatives are intended to or end up promoting general career exploration. Workplace experiences may be designed to improve general work readiness instead of occupational skills or specifically to allow students to sample careers in multiple fields.

The relative importance of students' knowledge of and commitment to a school-to-work program's target occupation may be affected by two factors: (1) the industrial sector targeted, and (2) the intensity

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[1]Both of these strategies are described in more detail in Chapter II.

of the workplace experience. Among the demonstration programs preparing students for careers in the trades, employers are more likely to provide job-specific skills and expect students to take jobs with them or another employer in the industry. In contrast, programs targeted toward service sector careers are more likely to provide general or broad occupational skills and appear less focused on a postprogram return on their investment. The demonstration experience also suggests that employers providing paid workplace training and work experience over an extended period are more concerned about students' connection to the industry and their prospects for hiring these students after program completion. Employers participating in programs in which students' wages were subsidized or in which students' workplace experiences were unpaid and/or short-term seem less concerned about students' eventual career direction.

ProTech and Scripps Ranch High School are the only demonstration sites that focus some program resources on providing career guidance and counseling in an explicit and systematic manner. Special "college counselors" at the Boston Private Industry Council visit participating students at their schools toward the end of junior year to begin administering the Harrington-O'Shea Career Decision-Making System--a type of interest inventory. The counselors use information collected from the results of the inventory and discussions with students to help the students formulate career and postsecondary educational plans, including plans directed toward occupations outside the program's focus. ProTech college counselors ensure that these career guidance activities (normally the jurisdiction of regular high school counselors) are undertaken by all program participants. The special attention to career development planning is probably one factor in the high rates of postsecondary entry among ProTech senior completers, compared with other seniors in the Boston school system.

Scripps Ranch High School is implementing career development activities more broadly and in a manner similar to that promoted by the STWOA. All students in the high school participate in a half-hour advisory period four days each week, designed to focus on career and educational planning. Although the curriculum is evolving, special units throughout the year include interest inventories, as well as discussions

about the characteristics of career clusters, setting occupational goals, and identifying and planning for the educational requirement needed to meet these goals. In addition, all sophomores participate in a one-day job-shadowing experience, and teachers at the school are encouraged to schedule field trips and guest speakers independently to provide students with additional career exposure. Although students in focus group discussions reported that these activities were "fun" and "cool," the extent to which they helped formulate career goals is unclear.

Although broad career development and guidance may not systematically be included in most school-to-work programs, many programs provide informal, ad hoc counseling. Focus group discussions with students and work-site supervisors indicate that both assigned job coaches and other co-workers discuss career options with students. Central program staff members and key teachers also counsel students when asked for advice.

The demonstration programs, to varying extents, also provided guidance on postsecondary educational planning. The different strategies undertaken by the sites and the issues associated with them are discussed in Chapter VI.

B. ENCOURAGING ACADEMIC ACHIEVEMENT

Although program staff would report that promoting students' academic success was important to them, this outcome was not a primary objective of all of the demonstration programs. Several of the programs were concerned mainly with performance in the vocational courses or at the work site. Key academic teachers certainly exhorted students to strive for and maintain good grades, but only a few of the programs provided incentives and support to students to encourage strong academic performance.

Some sites incorporated inducements for academic success into their program designs. Employer sponsors in the Craftsmanship 2000 pledged to give cash bonuses to students at the end of the year on the basis of their overall GPA; students receive $300 for a GPA between 2.5 and 3.0 and $600 for a GPA above 3.1 during the first two (secondary) years of the program and up to $1,000 for a high GPA during

the postsecondary years. Moreover, students whose grades fall are placed on probation and do not receive the customary stipend until the semester after their grades have risen. ProTech students are required to maintain a "C" average and 90-percent attendance in school to stay in the program and keep their jobs. Students in the Workforce LA Youth Academies--youths at risk of dropping out when they were recruited--are eligible for promotions and pay increases every six months only if they are making good progress toward earning diploma credits and have good attendance at their home schools. For the most part, students participating in focus group discussions reported that these incentives did provide motivation for them to pursue good grades.

A small number of demonstration programs also provide additional academic support to students experiencing difficulties. The MTP, Seminole County/Siemens, Craftsmanship 2000, and ProTech programs gave students access to tutors, at least in the first year of operations. In MTP, mentors at GM also function as tutors to help raise students' basic skills.

Several factors may affect which demonstration programs focus on promoting academic progress. First, programs that recruit economically or educationally disadvantaged students--as do ProTech, Workforce LA, and (to some extent) MTP--are likely to be concerned about student achievement and seek ways to prevent and address potential difficulties. Programs in which student enrollees are already achieving good grades may feel less inclined to worry about or devote program resources to monitoring and improving students' school performance. Second, programs with postsecondary components are also likely to be attentive to students' academic achievement in high school. Although poor achievement in high school may not hinder acceptance into a postsecondary program (community colleges often do not require a minimum high school GPA for enrollment), it might affect students' success in postsecondary education or training. Encouraging strong performance in high school mitigates the potential for later academic difficulties.

C. ASSISTING WITH PERSONAL ISSUES

In addition to help with identifying a career interest and maintaining academic achievement, students in school-to-work programs may need guidance in sorting out and dealing with other personal issues. Family, health, and social problems can interfere with students' success in the program, and many schools are not equipped to provide adequate assistance. Some demonstration programs undertake this task as part of the program model; others provide help on an ad hoc basis.

Almost none of the programs had plans to offer students personal counseling and mediation in their initial program designs. In most of the programs, however, individual program staff members take on these roles to some extent. Key teachers, work-site supervisors, and program coordinators all counsel students on a variety of issues, including those of a personal nature. The program coordinator, if that person is accessible and highly visible, usually handles these responsibilities. In the OaklandWorks youth academies, for example, students often rely on the academy director--a teacher who usually teaches the lab course and leads field trips and other special events. The academy directors have an academy "office," often a space in the classroom where the lab courses take place. Students often spend their free time in the lab or in the academy office, working on special projects or talking with the academy director.

A few programs officially designate responsibility for the overall welfare and success of the students to a key staff member. The advisory period at Scripps Ranch High School, which functions much like "homeroom," was implemented partly to provide students with a specific teacher who would act as a kind of counselor--guiding students on career and educational planning issues and (informally) on personal issues. The ProTech counselors who oversee the high school programs and act as liaisons between the schools and the employers also function as counseling resources for students. In addition to monitoring students' school and work-site performances--which provide signals to students' overall well-being, the counselors may intercede in a family crisis, assist in finding child care for a new mother, or help locate an apartment for a student who can no longer live at home.

Supervisors and other colleagues at the work site provide another source of counseling and guidance for students, as described in Chapter IV. Focus group discussions with students and mentors indicate that, once students have an opportunity to build a rapport with their co-workers, there is often a willingness to have informal exchanges on a variety of issues. Students do not always turn first to assigned work-site mentors for counseling on personal issues. Often the assigned mentor does not work as closely with the students as other adult staff members do, and students rely on the staff members with whom they interact most often. A key factor in the extent to which work-site staff members provide advice and in the success of these interactions appears to be the length of time and frequency that students are at the work site. Students who spend more time at the work site have a higher likelihood of establishing a trusting relationship with their co-workers and have more opportunities for informal discussions.

The types of students participating in the school-to-work program also affect whether and how often students seek advice from school- or work-based program staff members. Students from disadvantaged backgrounds may be more likely to experience personal difficulties and to have fewer adults outside the program to turn to. Students in one Workforce LA focus group discussion reported that they believed their co-workers cared about them as much as or more than their families at home did--co-workers asked the students about school grades, helped with homework, drove them home from work on rainy days, held birthday parties for them, and listened to and helped with personal problems. These Los Angeles students reported that, for the first time, they were being treated with respect, and they felt they could rely on their mentors to provide support.

The existence of a "homeroom" or designated office at school for the program appears to facilitate the requests for and provision of counseling on personal and other issues. These classroom offices provide space for student participants to "hang out" and opportunities to interact informally with program staff members. The offices are also convenient and private places for program directors or other staff members to meet with students for personal counseling.

D. ISSUES FOR DEVELOPMENT OF GUIDANCE AND COUNSELING

The demonstration experience suggests several lessons about how school-to-work programs provide career development and other forms of guidance and support.

- ***School-to-work programs that prepare students for a specific occupation are unlikely to provide broad career development activities as part of the program model.*** Staff members in these programs often assume that students have selected a career interest by their enrollment in the program. The programs assume that students have made this choice through career exposure activities before program enrollment, perhaps through participation in vocational courses. Unfortunately, comprehensive career development systems are not currently in place in many schools. As a result, students who choose to enroll in a school-to-work program may have little knowledge about or connection to the occupation or industry that is the focus of the program.

- ***Many employers, particularly those in nonservice industries, want students to make a commitment to the target occupation.*** Employer partners in many programs report participating in order to expand the pool of qualified entry-level workers in their industry. Programs with a 2 + 2 design often request that employer partners pledge to provide work-based learning for the full four years; these employers often want some assurance of a return on their investment. Compared with employers in programs targeted to the service sector, employers preparing students for careers in the trades are more likely to provide job-specific skills and expect students to take jobs with them or another employer in the industry.

- ***Career development activities that help students make informed choices about a career interest and school-to-work program may be key to the program's success and longevity.*** Because of employers' substantial training investment in participants in some school-to-work programs, the employers expect or at least hope that students will continue in the industry after high school and postsecondary education or training. When students abandon the program because of lack of interest in the occupation, employers lose their initial training investment. If this happens on a consistent basis, participating employers may be less enthusiastic about their commitment to the program, and recruitment of new employers may be more difficult. Thus, approaches to helping students select a school-to-work program that is most appropriate for them can benefit the overall program, as well as individual students. Less-intensive workplace experiences--including job shadowing or work-site visits--undertaken in the early years of high school, combined with school-based activities, can help mitigate mismatches between students' real interests and the school-to-work program they choose.

- ***Students with longer-term work-site experiences can often rely on mentors/supervisors for counseling on a variety of issues.*** Supervisors and other colleagues at the work site can be an important source of counseling and guidance for students. Whereas key teachers in a school-to-work program may instruct many students, work-site mentors often have responsibility for only one or two students. Focus group discussions with students and mentors indicated that, once students had an opportunity to build a rapport with their co-workers, there was a willingness to have informal exchanges on a variety of issues. Not

surprisingly, a key factor in the extent to which work-site staff members provided advice and in the success of these interactions appears to be the length of time and frequency that students are at the work site. Students who spend more time at the work site have a higher likelihood of establishing a trusting relationship with their co-workers and have more opportunities for informal discussions.

VIII. MAINTAINING THE COLLABORATION

School-to-work initiatives attempt to create learning opportunities for students by forging new types of connections among high schools, employers, and postsecondary institutions. To begin building these connections requires the inspiration and dedication of leaders within the participating organizations. To preserve the collaboration requires a common vision of the goals and design of the school-to-work program model. In addition, the partners must commit appropriate resources to develop and implement the program components agreed upon.

This chapter examines the types of partners and resources that were mobilized by the demonstration programs. First, we describe the types of institutions that helped create, manage, and expand the demonstration programs, and how the mix of partners affected programs' designs (Section A). Second, we review how sites used their demonstration grants to support program implementation and some of the factors affecting sites' planning and operational costs (Section B). Third, we examine the extent to which the demonstration grantees are continuing their collaborations and the factors that affect the continuation of these partnerships (Section C). Finally, we identify the primary challenges and issues in maintaining the collaborations and the school-to-work programs (Section D).

A. THE PARTNERS AND THEIR ROLES

By definition, school-to-work programs involve collaborations of institutions and organizations. To create effective school- and work-based activities, it is necessary to obtain the support and active participation of both schools and employers. Other groups, such as business associations like the local chamber of commerce or private industry council, may also be members of these collaborations. Members of the collaboration are likely to vary in their contribution of leadership, initiative, resources, and focus. The type and timing of their contributions can affect program designs.

1. Initiating the Demonstration Programs

Without a set of initial sponsors, a school-to-work program cannot be created. The demonstration's initial sponsors performed several important functions: They brought the key partners together, developed the outline of the design, and secured the initial funding for the initiative. These early planning tasks were often time-consuming and offered only small financial rewards. Consequently, the organizations that provided the initial inspiration and momentum for the demonstration programs were driven largely by the commitment of individual leaders within those institutions.

The leadership required to get a school-to-work initiative off the ground came from a number of sources (Table VIII.1). Some of the initiatives were led by high schools or community colleges. Other programs were initiated by employers. In a few sites, a third-party organization (for example, a private industry council or chamber of commerce) provided the impetus and early planning efforts.

Nearly all of the institutions that helped initiate the demonstration programs continued to help guide the effort after startup. These original sponsors were usually represented on the committees that formally or informally governed the demonstration. However, the day-to-day administration and management of the demonstration was sometimes transferred from the original sponsors to another party. For example, in several sites, including the Manufacturing Technology Partnership (MTP), employers helped initiate the program, but secondary or postsecondary schools or local school districts subsequently took over administration. In sites such as Craftsmanship 2000 and MechTech, Inc., a third party or business organization took over administration of a program that was initiated by specific employers.

Types of Sponsors and Effects on Program Design. The experience of the demonstration programs suggests that the types of institutions that initiate a school-to-work initiative often have a lasting impact on the program's design. In large part, this is because the identity of the lead institution can affect the initial and ongoing resources available to the program and, therefore, the set of opportunities and

TABLE VIII.1

LEAD PARTNERS AMONG SCHOOL-TO-WORK/YOUTH APPRENTICESHIP DEMONSTRATIONS*

Grantee Name/Project Name	District/ High School	Employers	Private Industry Council	Chamber of Commerce/ Other Business Organization	State Agencies	Community Colleges/ Technical Schools	Unions
Boston Private Industry Council							
ProTech Health Care	X	X	X*		X	X	
ProTech Financial Services	X	X	X*				
Craftsmanship 2000	X	X*		X*			
Illinois State Board of Education							
Chicago	X*				X*		
Rockford	X	X*			X*	X	
Gwinnett Youth Apprenticeship Program	X*						
Manufacturing Technology Partnership	X	X*	X	X		X	X*
MechTech, Inc.	X	X		X		X	
Middle Georgia Aerospace	X	X*				X	
Sears/Davea	X	X		X*			
Pennsylvania Youth Apprenticeship Program	X	X			X*		
OaklandWorks	X*						
Scripps Ranch High School	X*			X			
Seminole County/Siemens	X	X*					
Toledo Private Industry Council	X		X*				
Workforce LA Youth Academies	X*	X					

*Includes only the main partners

*Initiated demonstration

challenges the school-to-work program encounters. This is seen most clearly when contrasting the experiences of the initiatives launched by schools with those of the business-led demonstrations.

Most of the demonstration programs initiated by schools emphasize school-based activities. School-led initiatives have greater control over school-based resources such as teachers, guidance staff, and course schedulers. This administrative control simplifies the logistics of marketing the program to students, designing school-based activities, and scheduling these activities. However, school-led programs have more difficulty on their own marketing their initiatives to employers. Consequently, these programs usually develop fewer and less-intensive work-based activities.

School-initiated programs are less likely than other programs to focus on a specific occupation or career. To obtain work-based activities for students, many school-initiated programs must be flexible about the types of industries in which students are placed. Schools often have to recruit a diverse array of firms and workplace positions for students, making it difficult for teachers to predict the types of skills or knowledge students will acquire at the work site. Instead of focusing on occupational skills training, the program's work-based activities emphasize work readiness skills and some career exposure.

In contrast, employer-sponsored programs emphasize work-based activities and job skill development in students' overall experiences to a much greater extent than do school-led initiatives. Employers have a greater stake in these initiatives; when employers initiated school-to-work programs, they generally had substantial input into the program design and ensured that it met their needs and objectives. As a result, they were willing to make the investment of time and other resources to specify competency objectives, develop training plans, and pay students for longer-duration work experiences and skill training. The up-front commitment of firms in employer-initiated programs frequently led to written material and plans that provided a basis for interaction between teachers and employer staff members and helped to facilitate integration.

Number and Type of Employers and Effects on Program Design. The number and type of employers sponsoring a school-to-work program also affect the program model in several ways. When a single employer sponsored the initiative, that employer could exercise a great deal of control over the student selection criteria and the programs' skills objectives. Although the individual employers sponsoring these programs succeeded in shaping the demonstration to address their own labor market needs, this does not necessarily mean that program activities focus on narrow firm-specific technical skills at the expense of more general skills. For example, Siemens' work-based instruction emphasizes a wide variety of skills needed throughout the metalworking industry. This comprehensive training strategy is consistent with the German-based corporation's tradition of developing broadly trained flexible employees who are capable of being reassigned to a wide number of different functions. The main interest of General Motors (GM) in sponsoring MTP was to recruit female and minority high school graduates for its adult apprenticeships in several technical occupations. After assessing the skills of the participants, the GM and technical school staff realized that in order to pass the apprenticeship program's entrance exam, the participants' basic skills would need to be strengthened. This led to a program design that emphasizes basic skill instruction.

In contrast, when a group of firms sponsored the initiative, the parties had to negotiate a set of skill objectives and student screening criteria that were attractive to most of the partners. This sometimes led to the broadening of school- and work-based instruction. For example, the employers sponsoring Craftsmanship 2000 spent much time trying to define competency objectives that addressed the skill needs of all of the firms.

The type of industry sponsoring the initiative can also affect the program design. For example, many of the manufacturing firms that participated in the demonstration were experiencing labor shortages in some occupations that trained high school graduates could fill. As a result, most of the programs sponsored by manufacturing firms tried to provide some occupation-specific training so that students could

have the option of accepting a permanent job after they graduated. Most of the labor shortages experienced by participating health employers, however, were in fields that required postsecondary education and certification. This made it somewhat less likely that high school students participating in health-related school-to-work programs would obtain a permanent job in one of the health institutions that sponsored work-based activities. Consequently, most of the health-related work-based activities were designed to increase students' interest in and preparation for health-related postsecondary programs.

2. Maintaining Organizational Links

After partners have been identified and commitment sought, these partners must work together and communicate with each other in order to plan and implement a school-to-work program. They need to focus on ways to keep the collaboration going. Although good interaction during the initiation and planning phases can go a long way toward making a program successful, those that seem most effective consistently work to maintain a sense of cohesion and ongoing input into decision making from all groups.

Supportive Governance Structures. Boards or committees that bring together representatives of the partners help to develop a group identity and facilitate communication. These evolved formally or informally at many of the demonstration sites. ProTech, for example, has monthly executive committee meetings for each occupational program, at which all employer representatives, project coordinators, and other central staff members discuss program development and the progress of individual students. The Chicago ISBE program has an advisory board that meets monthly and includes employers and school staff members. Although not originally specified in the program design, GM mentors in the MTP meet every two weeks with school staff members from the vocational center to work on curriculum integration and share information on students. In contrast, programs with less emphasis on curriculum changes and integration of school- and work-based learning often lack a policy-making committee or regularly scheduled meetings of the partners.

Responsibility for Key Connecting Activities. Some activities that potentially involve both school and employer partners--now formally termed "connecting activities" under the School-to-Work Opportunities Act (STWOA)--are necessary during the planning and implementation phases. These connecting activities include recruiting and screening students, recruiting employers, developing curricula and training plans, training staff, and coordinating the entire initiative. Program managers had to be creative when they searched for staff members to perform these tasks, since the new responsibilities often called for contributions that went beyond the usual functions performed previously by school and employer personnel.

The organization that initiated the school-to-work program usually performs some of the key connecting activities. In some cases, the tasks are taken on or allocated to a single partner; in others, the responsibilities are shared by more than one partner (Table VIII.2). For example, administration often is the responsibility of one institution, while more specific activities (such as leading curriculum development or organizing staff development) are performed by other entities.

Programs in which primary connecting tasks are designated to a third-party partner are those with the strongest such connections. Schools and employers are interested in ensuring their own components are well implemented, but each has difficulty allocating resources to extend the institution's responsibilities into the other domain. However, there are some examples of such extensions. Several of the programs are implementing an enhanced cooperative education model that involves school staff in monitoring student work-site activities. These activities often are not performed as frequently or with as much attention as desired by program staff, however. Staff members are pulled in other directions and commitment to these linkages is not sufficiently strong. In contrast, third-party organizations, particularly those that have been involved previously with both schools and employers, are able to devote both the resources and attention to these activities.

TABLE VIII.2

RESPONSIBILITY FOR CONNECTING ACTIVITIES AMONG SCHOOL-TO-WORK PARTNERSHIPS

Grantee Name/Project Name	Developed		Recruit		Coordinate School and Work-Site Activities	Provide Central Program Staff and Administrative Support	Organize Staff Training
	School Curricula	Work-Site Activities	Students	Employers			
Boston Private Industry Council	Schools, contractor	Employers, contractor	Private Industry Council, schools, employers	Private Industry Council	Private Industry Council	Private Industry Council	Private Industry Council
Craftsmanship 2000	Employers, lead school	Employers	Schools, employers	Employers, chamber of commerce	C2000 Corporation	Chamber of commerce, C2000 Corporation (employers donate time of staff)	C2000 Corporation
Illinois State Board of Education	Schools	Employers	Schools, employer	Schools, community college	Schools, community college	Schools, community college	NI
Gwinnett Youth Apprenticeship Program	Schools	Employers	School	School students, school district	NI	School district	NI
Manufacturing Technology Partnership	Lead school[a]	Employers, community college	Schools, employers union	Lead school, employers, union	Schools, employer, union	Lead school	Employer, schools, union
MechTech, Inc.	Lead school	Employers	Schools, employers	Community college, schools	Community college	Community college	NI
Middle Georgia Aerospace	Schools, employers	Employers	Schools, employers	Employers	Postsecondary technical schools	Postsecondary technical schools	NI
Sears/Davea	Employer, school	Business organization, employer	School	Business organization	Business organization	Business organization, school	Business organization
Pennsylvania Youth Apprenticeship Program	State, contractor	Employers, state, regional business organization	Schools, employers	Regional business organization, schools	Schools	Schools	Schools
OaklandWorks	Schools	Employers	Schools	School district	School district	School district	School district
Scripps Ranch High School	School, employers[b]	Employers	School	Chamber of commerce	School	NI	School
Seminole County/Siemens	School	Employer	School, employer	Employer, school district	NI	School district	NI
Toledo Private Industry Council	Schools	Employers, Private Industry Council	Schools	Private Industry Council, schools	Private Industry Council, schools	Private Industry Council, schools	NI
Workforce LA Youth Academies	School district	Employers	Schools	Countywide partnership	School district	School district	NI

[a]Home school curriculum unaffected by program.

[b]Half-hour advisory period curriculum affected only.

NI = not implemented.

Several sites were creative in forming or contracting with independent organizations (third parties) to help provide key connecting activities for the school-to-work programs. These third parties were included as program partners primarily to assume responsibility for payment of student wages and for liability at the work site. Participating employers view these organizations as a way of better coordinating student payments when multiple firms are involved and of protecting themselves from the complications of litigation and other potential liability issues. For Craftsmanship 2000 and MechTech, Inc., new nonprofit corporations were created specifically for the school-to-work initiatives, and partner firms gave the new organizations overall program administration tasks, as well as wage payments. Partners in the Rockford ISBE program contract with a temporary personnel agency to pay student wages. In all of these sites, having a third party responsible for this task has worked reasonably well.

Making Use of Third Party Organizations. In many programs, a third party (for example, private industry council, chamber of commerce, regional business group) performs the connecting activities. These third parties play three valuable roles in maintaining the school-to-work partnerships and in program development. First, most of the third-party institutions involved in the demonstration are familiar with the environments, terminology, and pressures confronting the other partners. These neutral organizations are therefore in a good position to balance the influence of schools and employers and to bridge the cultural gaps that exist between these partners; they facilitate communications, mediate disagreements, and help the other partners appreciate each others' perspectives. Second, third-party groups often have particular, essential expertise that the school and employer partners do not have. Finally, third-party partners are often active in securing other funding for the school-to-work programs. Chambers of commerce and private industry councils can sometimes donate funding to the programs for special purposes. Alternatively, many have access to experienced grant writers and have been successful in obtaining grants from foundations or individual employers to support the school-to-work initiative.

Policymakers and practitioners have recognized the value of the roles played by these organizations. While demonstration grantees were required only to include schools and employers in their collaborations, local partnerships funded under the STWOA are required to include third-party organizations as essential members.

3. Expanding the Collaboration

Most of the school-to-work programs sought to expand their program operations and, therefore, their partnerships. The demonstration sites wanted to increase the scale of program participation for several reasons. First, the partners hoped to increase the number of students who benefited from their program's educational innovations. Second, many programs wanted to become less dependent on special funding. By spreading the costs of program coordination and curriculum development over a larger number of students, they hoped to reduce their per-student costs. A third reason developed during the demonstration period; federal school-to-work policy was shifting away from endorsing the types of add-on, small-scale programs represented by the demonstration grantees and toward broader systems that could expose greater numbers of students to school-to-work activities.

To attract and accommodate additional students, the programs attempted to expand their partnerships in two ways. Both often required program staff to seek additional employer partners.

First, several programs reached out to additional schools or school districts. In some cases, like the Middle Georgia Aerospace site, the expansion was in the program design--that is, it was intended for the program to be implemented initially as a pilot and then to be adopted in other schools in the districts. In other cases, such as the Seminole County/Siemens program, extension to other schools was made to broaden the pool of applicants. Many programs found it difficult to recruit enough students interested in the target career within a single school or even several schools.

The second expansion approach, which many of the sites adopted, is to add new programs that target different occupations. Because enrollment was limited to some extent by the fixed number of students

interested in the original career area, some sites chose to offer new occupational programs within the same set of schools as a way of attracting more students. Others, including ProTech and Craftsmanship 2000, began new programs at schools that do not offer the original program in order to expand the program model to a greater number of schools.[1] The most common new school-to-work program the demonstration grantees added focuses on health care occupations. MechTech, Inc. added a printing focus in addition to its original metalworking program.

The two approaches to expansion had different levels of complexity. Adding schools sometimes meant that features of the program had to be modified (for example, not all schools could cluster students in key courses). However, competency objectives, basic curriculum units, scheduled special events, and (most important) the types of employers recruited could remain the same as when the program was run on a smaller scale. This strategy allowed programs to spread certain planning and fixed program costs over a greater number of students, helping them to serve more students and lower unit costs.

Adding occupations was clearly more difficult. The sites had to undertake essentially the same level of effort as had been put into the development of the original program, including identifying appropriate schools and employers, defining program goals, and developing new curricula. The sites benefited from their earlier experience planning and implementing a program model; therefore, not all costs were duplicated the second time. However, they still invested substantial resources in developing the new programs. Thus, the per-student costs of the site programs often are unlikely to have decreased significantly, although the sites are able to serve more students.

Most of the demonstration sites have already expanded and others intend to do so. The new school-to-work systems promoted by the STWOA will encourage grantees to add *both* schools and occupations in order to serve broader numbers and types of students.

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[1]Two schools participating in ProTech offer both Health Care and Financial Services.

B. ASSEMBLING RESOURCES

New initiatives or programs need to mobilize staff and other resources to develop and implement activities. These resources may come from the sponsors of the initiative, other partners playing important roles in its implementation, or from external sources with interest in its development. The amount of resources required and the cost of the new activities depend on the complexity of the model, the number of individuals served, and how different the initiative is from what existed previously (an important consideration).

To plan and implement school-to-work programs, the demonstration sites are relying on the resources of several organizations, including the grants provided by the U.S. Department of Labor (DOL). This section presents information gathered during site visits about the use of DOL funds and the overall costs of each program. Where available, we provide estimates of the total resources used in planning and implementing a school-to-work program. Information on total resources is incomplete for some sites because it was difficult for site staff to separate the resources used in school-to-work programs from total school or firm expenditures. At some sites, we were unable to interview individuals from each participating organization who knew about expenditures made or resources used for the program. Nevertheless, the information presented here suggests the types and magnitude of resources needed to plan and implement school-to-work programs. Information about how grantees used the DOL funds and the costs of their programs can be useful indicators of the likely longevity of the programs they are implementing.

1. Use of DOL Grant Funds

The DOL grants provided important (although not always vital) support to the school-to-work programs. The demonstration sites received grants that, in total, ranged from more than $1 million for the 1990 grantees to $250,000 for the 1992 grantees (Table VIII.3). For five grantees, the DOL funds provided the impetus and main support for development of their school-to-work programs, particularly

TABLE VIII 3

USES OF U.S. DEPARTMENT OF LABOR (DOL) GRANT FUNDS

Grantee Name/Project Name	Amount of Grant	Grantee Assessment of Impact of DOL Funds	Administration and Coordination	Curriculum Development	Staff Development	Equipment/Special Supplies	Other
Boston Private Industry Council							
ProTech Health Care	$1,222,526	Main support for program	Oversight and administration	Subcontractor to help develop integration activities	Release time for teachers to visit work sites	Student calculators; some science supplies	
ProTech Financial Services	$250,000	Supplemented existing effort	Planning costs				
Craftsmanship 2000	$250,000	Supplemented existing effort	Salaries for overall project coordination				
Illinois State Board of Education	$250,000	Supplemented existing effort	Central administration at state and local levels				
Manufacturing Technology Partnership	$250,000	Supplemented existing effort		Integration of academic and vocational curricula		Equipment for training site	Support new employers for startup
MechTech, Inc	$532,282*	Main support for program	Project director salary and expenses				
Middle Georgia Aerospace	$250,000	Supplemented existing effort	Planning costs, administration; travel	Work readiness curriculum	Summer job shadowing for teachers and counselors	Computers, materials, and supplies	
Sears/Dayton	$548,666*	Supported assistance provided by National Alliance of Business	Project travel and other administrative expenses for site; administration and technical assistance by National Alliance of Business	Summer work on vocational curriculum			
OaklandWorks	$250,000	Supplemented existing effort	Salaries for two industry/ education liaisons	Summer work on vocational curriculum	Teacher attendance at conferences		
Pennsylvania Youth Apprenticeship Program	$746,250	Important support for planning	State-level administration and coordination		Teacher attendance at curriculum workshops		
Scripps Ranch High School	$250,000	Supplemented existing effort	Initial planning	Planning curriculum	Release time for teachers, participation in Total Quality Management seminars		
Seminole County Siemens	$250,000	Supplemented existing effort				Upgrade equipment in school	Instructors, supplies, and rent at employer training facility
Toledo Private Industry Council	$250,000	Main support for program	Salary of project director and occupational specialists			Supplies and instructional material	
Workforce LA Youth Academies	$909,706	Supplemented existing effort	Central office staff salaries and supplies; coordination for youth academy classes	Curriculum development			
Gwinnett Youth Apprenticeship Program	$250,000	Supplemented existing effort	Project director and program coordinators at high schools		Training for teachers and administration		

*Includes funds used to support two other demonstration programs in Maryland

*Includes some funds used in another demonstration program

during the planning stage (Boston Private Industry Council, MechTech, Inc., Sears/Davea, Toledo Private Industry Council, and, to a lesser extent, the Pennsylvania Youth Apprenticeship Program [PYAP]).[2] Because each of these grantees is a third party (that is, neither a school system nor an employer), it is not surprising that an external grant was particularly important to the development of their programs.

The remaining sites indicated that the DOL grant strengthened an existing effort to develop a school-to-work program. In several sites--Craftsmanship 2000, the Illinois State Board of Education (ISBE) Rockford site, MTP, Middle Georgia Aerospace, and Seminole County/Siemens--an employer or set of employers had identified a need for better-trained entry-level workers and had already started planning a youth apprenticeship program. In other sites--OaklandWorks, Gwinnett Youth Apprenticeship, Scripps Ranch High School, and Workforce LA Youth Academies--the school system applied for the school-to-work grant to enhance and support an existing program.

In most sites, the grants have been used by staff engaged in planning the programs and staff members who direct and coordinate program operations after they begin. Programs in the planning stage will naturally use grant funds to support this effort. Operational programs need funds to support activities, such as coordination of school and work-site experiences, that would not typically be paid for by a school budget or employer.

In addition to supporting program planning and coordination, the grant funds were also used to support a variety of activities that stretch the capacities of existing school and employer budgets. For example, several sites used grant funds to support curriculum development or pay for teacher workshops on implementing a specific curriculum. Other programs used grants to pay for release time for teachers to visit work sites. Several sites used their funds to purchase special supplies or upgrade equipment. A few programs used some grant money to offset costs borne by employers. For example, the MTP site

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[2]The concept for the PYAP program was developed by the state; some program planning had begun before the DOL grant solicitation was announced. The program design was not formalized, however, until the site applied for the grant. Planning accelerated after the grant was received.

provided some funds to set up the training facility at GM and to give new employers some funds for program startup. The Seminole County/Siemens program used part of its grant to help pay for instructors, training supplies, and rent at the Siemens training center.

Overall, most grant funds were used to support connecting activities. Staff members responsible for central administration were most often the liaisons between employers and schools, were responsible for recruiting new employers, participated in the assignment of students to workplaces, and monitored student progress. Not all of the organizations using the grants for central administration engaged in these activities extensively or were cost-effective in their use of funds, however. A few sites made only small changes to preexisting activities or services available to students or served only a very small number of students over the grant period.

By spring 1995, the time of the last evaluation site visit, all of the demonstration grants had expired. Grants made to most sites ended in winter 1994. A few sites that had not spent the entire grant amount by that time requested an extension through spring or fall 1994. We discuss the extent to which the termination of these special funds affected the demonstration programs in Section C.

2. Planning Costs

Planning school-to-work programs can be a lengthy, time-consuming process that imposes substantial costs on schools, employers, and third parties. Primary activities include developing new curricula, designing and seeking partner consensus on the school- and work-based components, and training staff members to implement these components. Although these are generally start-up resource costs that precede enrollment of students, program staff cannot always easily separate them from ongoing program costs.

The experiences of four sites illustrate the potential magnitude of school-to-work program planning costs:

1. The MTP program in Flint was developed jointly by staff from the local GM plant, United Auto Workers (UAW) Local 659, and the area vocational school. Staff from the program estimated that the GM training manager devoted 50 to 80 percent of his time during one year to planning the program; the personnel director spent about 40 percent of his time during this period. The UAW representative devoted about 20 to 25 percent of his time to the planning phase. Staff from the vocational school became involved with the program partway through the year and spent about seven months planning. During this time, two school staff members spent 90 to 100 percent of their time in planning; the principal devoted about 20 percent time. Two teachers also worked half-time during the summer developing the curriculum.

2. The Seminole County/Siemens project was developed jointly by Siemens staff and staff from the Seminole County schools. Estimates of the time spent by school staff during the six months of planning include 25 percent of the county vocational education director's labor hours and a similar proportion of the principal of the main high school involved in the program. An aggregate total of about 25 percent time was spent by other school staff members. Although we were unable to obtain precise estimates of planning costs from Siemens staff members, their planning activities included designing and overseeing the construction of the training center and matching the work-site curriculum to the school's vocational curriculum--all of which required substantial staff and material resources.

3. The Craftsmanship 2000 program in Tulsa was developed jointly by the chamber of commerce, local industry, and public and vocational school districts. Planning took about two years. According to staff, total planning expenditures were $75,000 to $100,000. This amount does not include an additional $20,000 that was spent to train mentors or the cost of the mentors' time. Also unaccounted for in the estimate are the costs of about 2,000 hours devoted by industry representatives to curriculum development and the in-kind contribution of a curriculum developer for two years by Tulsa Technology Center.

4. Although ProTech Health Care spent about $400,000 on program planning and curriculum development in its first year, staff members of the Boston Private Industry Council reported that, on the basis of their experience in developing the program, estimated costs for a year of planning should be about $275,000 for a similar program involving three schools. This cost includes a full-time project director for a year, and three project coordinators and an administrative assistant for six months. The estimated total also includes the cost of curriculum development. The difference between actual and projected planning costs is due to a major shift in partners and responsibility for curriculum development made during the start-up phase that resulted in unexpected expenditures.

3. Program Costs

After the initial planning phase, most school-to-work programs incur ongoing implementation costs. Programs expend resources on (1) linkages between school and workplace activities, ongoing program development, and other connecting activities; (2) in-school instruction; and (3) workplace activities.

The cost of coordinating and linking school and workplace activities is a significant portion of school-to-work program expenditures. These expenditures include costs associated with overall program administration, as well as costs for release time for teachers to visit work sites and link school curricula to work-site activities. Unlike the cost of school instruction, these expenditures would not generally be incurred in the absence of a school-to-work program and represent additional costs required to operate these programs.[3] In some demonstration sites, these costs are borne entirely by the school district; in others, they are borne in varying degrees by third parties. In a few sites, these linkage activities are not a focus of program implementation (largely due to the lack of extensive student work-site experiences), and therefore the true costs associated with coordination are relatively small.

Some sites were able to estimate the costs incurred by institutions that perform this coordination function. Their estimates suggest that school-to-work coordination activities, for the relatively small programs with extensive work-site components found in the demonstration, may add between 30 and 50 percent more to the average per-pupil cost in the high schools of participating communities. Specific examples follow:

- The MTP program in Flint estimated that, in the first year, the local vocational school spent approximately 30 percent more on its youth apprenticeship students than on its other students. The additional costs were incurred for administrative support and coordination and for tutoring students. In terms of staff time, the principal spent about one-third time, the project director 90 percent time, and the project coordinator 100 percent time. Two tutors each spent about half-time on the program during the first year, working with a total of 50 students.

- Staff in the high school involved in the Rockford ISBE program estimated that the school's costs for participating in the program were about $79,000 in the first year, not including time spent by teachers for curriculum development and time spent by the principal. This estimate breaks down to approximately $5,300 per student. Like the MTP estimate, this estimate is about 30 percent more than the average cost per student in the high school.

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[3]An exception occurs in co-op programs, where some time for linking school and workplace activities may be budgeted.

- ProTech computed an average cost per student of $3,500 during the first year of program operation. This estimate includes the costs of linking activities undertaken by the Private Industry Council, including (1) central administration at the Private Industry Council and recruitment of new employers, (2) curriculum development, (3) tuition for community college courses taken by high school students, (4) program evaluation, and (5) program materials and supplies. This estimate adds approximately 50 percent more to the average cost per student in Boston public high schools, although it includes more than traditional coordination functions.

- The Chicago ISBE program operating at Senn Academy estimates that administration and coordination each year requires approximately 50 percent of the time of two counselors and the assistant principals. Their efforts include planning and participation in advisory board meetings, job shadowing, and field trips. In addition, a staff person (a retired tool and die maker) added with grant funds spends about one-third of his time attending advisory board meetings, participating in curriculum development, and recruiting employers. Estimating typical salaries and a maximum of 45 students participating in any given year results in an average cost per student of just over $2,000, or about 40 percent more than the approximate per-pupil cost in the Chicago school system.[4]

As programs develop and grow in size, per-student costs for coordination are likely to decline because administrative costs, in particular, are spread over more students. For example, by the third year of program operations, ProTech Health Care had reduced its per-student coordination costs from $3,500 to $2,000, largely because of the increased scale of participation; project coordinators' salaries could be spread over 40 students, instead of 25. The ProTech director estimates that project coordinators could increase their caseload to as many as 80 students, potentially lowering average unit costs even further. Nevertheless, per-student costs for school-to-work students are likely to exceed those for other students.

School systems also incur costs for academic and vocational instruction in school-to-work programs. In the demonstration, school systems have borne these costs because they would still incur them without a school-to-work program. For example, schools participating in the Rockford ISBE program contribute $500 per student per year to cover the additional costs of the vocational component of the program. If school-to-work programs affect the average cost per student for instruction in the long run, school systems

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[4]Estimated annual wage costs in these calculations include $75,000 for a high school principal, $40,000 for a counselor, and $45,000 for an occupational specialist.

will need to consider this cost element when deciding whether to adopt or expand these programs. In a few programs, like the PYAP, students spend less time in the classroom than other high school students do. In this situation, costs related strictly to school-based instruction could actually be lower than costs in the absence of the program.

Other factors also affect cost, however. Many school-to-work programs use special curricula or equipment that raises average costs. The implementation of student clustering in key courses can also increase costs. For example, in the PYAP and some other demonstration programs that offer courses specifically for demonstration participants, classes are smaller than the average high school class. Reduced class size raises the average cost of instruction. Unless these school-to-work programs become large enough to support separate classes, school districts may be reluctant to pay for these school-to-work classes.[5]

Finally, school-to-work programs will incur costs in the workplace--for wages paid to students, the time of workplace mentors, administration, and special equipment. These costs, although generally borne by employers, can be substantial and should not be overlooked in planning such programs.[6] Moreover, the higher these costs are, the more difficult it will be to find employers willing to participate in school-to-work programs.

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[5]This situation has already occurred at the Philadelphia PYAP site, although as of now the school has taken no action to eliminate the program.

[6]Employers are paying for most of these costs in the demonstration sites. The exceptions are the MTP program, in which some equipment was paid for by the DOL grant, and a portion of the students' stipends are paid for by a Job Training and Partnership Act (JTPA) grant; the OaklandWorks program, in which JTPA funds and a special city grant support student workplace stipends; and the Seminole County/Siemens program, in which some of the DOL grant money was used for instructors, training supplies, and rent at the Siemens training center.

Conversations with employers suggest that student wages are not the major cost of participating in a school-to-work program, particularly if students actually produce some output.[7] Instead, many school-to-work program staff members cited mentoring and supervision as a more important cost factor. The mentors are usually experienced employees who are paid a relatively high wage; they spend substantial amounts of time with students, when they might otherwise be engaged in production work. In addition, costs for administrative activities at work sites can be substantial. Estimates provided by program staff best illustrate the range of these costs:

- In the MTP program in Flint, GM paid for most of the costs for seven full-time journeymen, who make $40,000 to $45,000 a year, to serve as mentors for the 50 students in the program during the first year of operations. In addition, GM paid for the roughly half time spent by the project coordinator and a human resource administrator on the MTP program. Several other GM administrators also spent time on the project, as did the UAW representative.

- A small employer who employs one student as part of the PYAP program in Philadelphia estimated that he spent one to one and a half hours a week with the student. The employee mentor spent half of his time providing instruction and supervision during the 16 hours per week the student was working.

- Siemens estimates that it has spent about $2 million since the inception of the program in 1992, or about $13,000 per student per year. This estimate includes costs for materials and equipment, student stipends, training center rent, mentor salaries, and coordination expenses. A significant portion of the cost is derived from activities related to developing and implementing the postsecondary part of the program, which also draws students from outside the youth apprenticeship program directly into the community college.

- Sponsoring employers in the Rockford ISBE program pay $9,400 per student; this covers the entire two-year high school portion of student wages, materials, and maintenance of equipment at the training center. In addition, employers pay for mentor training, and employer liaisons spend 6 to 10 hours per week on youth apprenticeship coordination activities.

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[7]In some sites, like Seminole County/Siemens, students receive wages or stipends for time spent in a training facility. No output is produced by students to offset wages. These wages represent a greater cost to employers than wages paid to students who are providing services (for example, students in MechTech, Inc., and ProTech Health Care).

- Employers who sponsor students in the Craftsmanship 2000 program pay $30,000 per student for the four years of the program, to cover the costs of student stipends, insurance, and bonuses for good grades. However, one employer estimates that the real cost of sponsoring a student approaches $200,000, after costs associated with workplace instruction and administration are included.

- Costs for hospitals participating in ProTech Health Care are substantial. The two high school years of student wages alone are approximately $9,000, and some hospitals continue to employ students during their years of postsecondary study. Relatively senior hospital staff members spend significant time coordinating the clinical rotations, monitoring student progress, attending administrative meetings at the Private Industry Council, and recruiting new student positions.

Despite these substantial costs, employers are generally satisfied with the results of their investments. Employers in several sites reported that, even though the per-student costs are high, they are still less expensive than training a new employee hired "right off the streets." For example, a board member of Craftsmanship 2000 suggested that new, nonapprenticeship employees still need 12 to 16 months after 60 hours of formal training before they can work completely independently. In contrast, students who complete the youth apprenticeship program are ready to perform productive tasks when they graduate.

C. CONTINUING THE PARTNERSHIPS

An important objective of the demonstration was to promote the development of school-to-work programs that would expand and flourish even after the demonstration grants had been exhausted. We were able to observe the sites in transition off of the DOL grant, because most of the grants had expired by the time of the last evaluation site visit in spring 1995.

All of the site programs continue to operate in some capacity. Some have begun enrolling fewer participants than in the earlier years, but others have expanded participation. Most sites offer students essentially the same school- and work-based components as they did while program activities were supported by the DOL grant. Even the level of coordination in most sites has remained constant. Programs that had extensively changed the nature of students' learning experiences continue to do so and are reaping the benefits of up-front investment. Programs that made more limited modifications to

preexisting school- or work-based opportunities also are able to offer these activities without the DOL grant.

Several factors have made it possible for the school-to-work programs to maintain their activities. First, a significant proportion of the DOL grant funds were used for start-up activities, such as designing the program elements, negotiating working relationships among schools, employers, and third parties, developing curricula, and purchasing supplies and equipment. Although most of these activities require continual fine-tuning, as reported by program staff, they no longer require heavy resource investments now that the programs are operational. Second, some programs used grant funds largely for other special, one-time only purposes, such as the defining of educational/career paths by OaklandWorks consultants or the participation of Scripps Ranch High School teachers in special staff development activities (including Total Quality Management sessions). Programs in this category relied on grant funds to supplement existing efforts, but most staff and activities designated during the demonstration period as school-to-work were already included in normal school budgets. In most of the demonstration programs, participating employers and schools have been willing to shoulder the added costs of their respective activities.

A third important factor in the continuation of some demonstration partnerships is the receipt of new grants to completely or partially replace the DOL funds. Most significantly, four of the demonstration sites are included in partnerships awarded direct local grants under the STWOA: (1) Boston's ProTech; (2) Craftsmanship 2000; (3) the Chicago ISBE program; and (4) San Diego's Scripps Ranch High School. These new school-to-work funds are particularly critical to ProTech and Craftsmanship 2000, both of which rely heavily on third-party organizations to administer and coordinate program activities. The ProTech staff at the Boston Private Industry Council and the staff at the nonprofit organization that operates Craftsmanship 2000 would both have been scaled back substantially, and program activities would have been modified, if the STWOA grants had not been awarded. Some of the PYAP sites received grants from foundations or other sources to support program activities.

D. ISSUES IN SUSTAINING SCHOOL-TO-WORK COLLABORATION

Initiating and maintaining collaborations of organizations and institutions to operate school-to-work programs takes some effort. Each member of the partnership has its own interests and preferences to be accommodated; each will inevitably incur some costs and commit some level of resources to help implement the program components agreed on.

The demonstration grantees and their experiences provided substantial information about the process of forming a school-to-work partnership, assembling necessary resources, and maintaining the collaboration. Lessons from this experience suggest the following:

- ***The type of institution that provides the impetus to develop a school-to-work initiative often has a lasting impact on the program's design.*** The identity of the lead institution can affect the initial and ongoing resources available to the initiative and, therefore, the opportunities and challenges the school-to-work program encounters. Programs initiated by schools end up emphasizing school-based activities. School-led initiatives have greater control over school-based resources--teachers, guidance staff, and course schedulers--but less access to employers. Administrative control simplifies the logistics of marketing the program to students, designing school-based activities, and scheduling these activities. However, school-led programs have more difficulty on their own marketing their initiatives to employers; consequently, they develop fewer and less-intensive work-based activities. School-initiated programs are also less likely than other programs to focus on a specific occupation or career; they emphasize work readiness skills and career exposure instead of occupational skills in workplace activities. In contrast, employer-sponsored programs emphasize work-based activities and job skill development in students' overall experiences to a much greater extent than do school-led initiatives.

- ***Partnership expansion occurs in two ways and follows efforts to increase program scale.*** To attract and accommodate additional students, school-to-work programs expand their partnerships in two ways--both requiring additional employer partners. In one approach, existing programs reach out to additional schools or school districts to broaden the pool of applicants, because many programs find it difficult to recruit enough students interested in the target career within a single school or even several schools. The second approach is to add new programs that target different occupations, either within the same set of schools or in different schools. The two approaches to expansion have different levels of complexity. Adding schools sometimes requires modifying program features to reflect individual schools' needs and constraints. This strategy allows programs to spread certain planning and fixed program costs over a greater number of students, helping them to serve more students and lower unit costs. Adding occupations is more difficult. School-to-work planners have to undertake essentially the same level of effort as they already put into the development of the original program, including identifying appropriate schools and employers, defining program

goals, and developing new curricula. Thus, the per-student costs of the site programs often are unlikely to decrease significantly, although the programs are able to serve more students.

- ***School-to-work coordination activities are substantial in some types of programs.*** Initially, expenditures for these activities in programs with extensive work-based learning may add between 30 and 50 percent more to the average per-pupil cost in the high schools of participating communities. As programs develop and grow in size, however, per-student costs for coordination are likely to decline because administrative costs, in particular, are spread over more students. For example, by the third year of program operations, ProTech Health Care had reduced its per-student coordination costs from $3,500 to $2,000, largely because of the increased scale of participation; project coordinators' salaries could be spread over 40 students, instead of 25. Nevertheless, per-student costs for school-to-work students are likely to exceed those for other students.

- ***Employer costs in youth apprenticeship programs are high, but generally considered worth the investment.*** Employers that participate in youth apprenticeship programs in which students are involved in ongoing, paid workplace activities spend at least $10,000 per student for the secondary part of the program. Despite these substantial costs, employers are generally satisfied with the results of their investments. Employers in several of the demonstration sites reported that, even though the per-student costs are high, they are still less expensive than training a new employee hired "right off the streets."

IX. CONCLUSIONS AND RECOMMENDATIONS

New initiatives take time to implement fully and require constant fine-tuning during their development phase. The School-to-Work/Youth Apprenticeship Demonstration programs are no exception. They represent some of the earliest pioneering efforts to formally link educators and employers and school- and work-based learning activities. Both by design and out of necessity, they exemplify diverse approaches to addressing the school-to-work transition problem. Through experimentation, the projects have provided important lessons to policymakers and practitioners about the benefits and challenges of implementing these types of programs. That some did not evolve in the direction project staff expected or did not expand to the extent desired reflect the difficulties both of changing long-standing practices and dealing with factors that are often beyond the control of organizing staff.

In this chapter, we present conclusions about and recommendations for school-to-work development on the basis of information collected during the four-year evaluation of the demonstration sponsored by the U.S. Department of Labor (DOL). Federal, state, and local interest in school-to-work initiatives grew during this period; however, expectations of them and views of the essential components shifted somewhat. The result of the increased attention and shifting priorities was the School-to-Work Opportunities Act of 1994 (STWOA), which promotes the development of broad school-to-work systems that are likely to differ in some important ways from the more narrow model the demonstration programs were encouraged to adopt initially.

Still, lessons from the demonstration experience can inform school-to-work planning in other communities, largely because of the diversity in approaches illustrated by the participating sites. The demonstration initiatives vary across several important dimensions, just as evolving school-to-work systems are likely to. They vary in occupational focus; targeted students; the roles of schools, employers, and third parties in initiating and providing ongoing support; and the emphasis on integrating school- and

work-based learning. The sites also vary in their stage of development; 5 of the sites have been operating for more than five years, while the other 10 have been implementing their programs for, at most, three years. The demonstration programs thus represent different approximations of the ideal youth apprenticeship model, under which schools provide integrated academic and vocational education linked to employer-provided paid work experience and training at a work site. In some sites, the program design is quite similar to this model. In most sites, however, the design diverges from the ideal model because some components were purposely eliminated or modified, or have received less emphasis than suggested by the model.

This chapter offers four types of assessment of the demonstration experience. First, we describe some of the promising strategies and key elements that appear to promote implementation success (Section A). Second, we document the challenges the demonstration sites did and will continue to face as they maintain their program operations (Section B). Third, we discuss the extent to which the programs are likely to expand or be integrated into a broader school-to-work system in their communities (Section C). Finally, we outline some recommendations for state and federal policymakers interested in reforming education through school-to-work initiatives (Section D).

A. KEY STRATEGIES IN SCHOOL-TO-WORK PROGRAMS

School-to-work programs will inevitably vary in their approaches to key components. Although they share a common long-term goal--the successful transition of each student to career-oriented employment--the communities they serve will undoubtedly emphasize different interim objectives, have different needs, and face different constraints. The STWOA acknowledges the likelihood of diversity and provides considerable latitude to states and localities in developing their initiatives. However, the demonstration experience suggests that some strategies are both common and critical to successful school-to-work initiatives. These promising practices appear to make implementation of key components easier, improve the nature of the partnership, or affect student outcomes. Some of these practices, which most clearly

enhance the operations of distinct programs for students, may not apply completely to broad systems being designed to include all students in some school-to-work activities. Systems are often built on distinct programs, however, and these approaches can provide important guidance to school-to-work planners. The potentially effective strategies include:

- ***Screening carefully for interest in the target occupations can improve program success.*** When intensive workplace experiences are part of a program of study or career major, as they are in youth apprenticeship programs, ensuring participant interest in the target career or occupation can reduce rates of program dropout and improve employer satisfaction. The students most likely to exit early from a school-to-work program are those who do not find the target career and work-site environments appealing. However, employers participating in youth apprenticeship programs often expect students to remain committed to the occupation for which the employer is investing training resources. When students abandon the program for lack of interest or to pursue other careers, employers lose their investment. Over time, high rates of dropout for this reason can cause employer dissatisfaction.

- ***Clustering students in key courses makes integration of academic and vocational education and of school and work-site activities much easier.*** Grouping students by career interest allows teachers to incorporate occupationally relevant applied learning into classroom instruction and to link work-site tasks to the teaching of theoretical concepts and technical skills. As school-to-work reforms expand, clustering may actually be more feasible, since grouping larger numbers of students with similar broad career interests and school-to-work participation is easier to accomplish and financially more viable than it is with small groups.

- ***Developing integrated curricula requires carefully balancing career context and broader educational themes.*** Academic curricula can focus too much on a career or occupation. Despite the creativity of curriculum developers and site teachers, students can be turned off (or even bored) by constant emphasis on a particular career area for classroom examples and projects. Students seem to need variety in curriculum context.

- ***Obtaining employer input into curriculum revisions is not difficult, especially if employers are making other significant investments in the school-to-work program.*** Employers are often willing to devote staff time and resources to review or help develop school curricula as part of school-to-work programs, especially when their firms are also providing paid workplace positions for students and/or expect that program graduates will be candidates for permanent employment. Firms making these investments see themselves as having a direct interest in shaping the school curricula, particularly relevant vocational courses that can be designed to provide both general and specific skills and to prepare students for immediate productive tasks at the work site. Despite the priority most employers place on basic, problem-solving, and communication skills, they are likely to contribute less to the development of academic curricula; firms are less familiar and comfortable with the process of identifying general competencies and developing specific activities that address them.

- ***Incorporating employer incentives into school-to-work programs may have a stronger influence on students' postsecondary plans than other types of secondary-postsecondary linkages.*** Employers' commitments that guarantee continuation in the program work-site placement, postsecondary tuition assistance, and priority in permanent hiring after postsecondary program completion seem to be strong factors in students' decisions both to enroll in school-to-work programs and to enter and complete relevant postsecondary education or training. In contrast, articulation agreements--which in some cases allow students to earn college credit for high school courses-- appear to have less effect on students' postsecondary plans.

- ***Creating linkages between secondary and postsecondary education is easier when programs of study are well defined with a career focus.*** Sites that offer defined career pathways can identify local postsecondary education or training institutions that offer strong programs in the targeted career area and focus on developing one or a few relevant articulation agreements. Programs of study with a defined target occupation/career are more likely to have students learning job skills in vocational courses and at the work site. Firms see value in continuing to employ such students after high school and offering them permanent positions after they earn postsecondary credentials--an important incentive for pursuing postsecondary education. In contrast, school-to-work initiatives that have no career-oriented programs of study have greater difficulty for negotiating articulation agreements, which most often link secondary and postsecondary vocational programs. The general work experience opportunities provided as part of these initiatives are also less likely to generate strong employer-sponsored incentives for students to enroll in college or advanced training.

- ***Delaying intensive work-site activities may be appropriate and improve matching of students with workplace experiences.*** Some programs have found it useful to have students job shadow or visit more than one employer before making job assignments. These visits help students confirm their interest in the target industry and identify a preference for particular firms or positions before being placed more permanently at a work site, potentially lowering rates of program dropout.

- ***Recruiting employers is best left to third-party partners.*** Chambers of commerce, private industry councils, trade associations, and other groups of businesses have proved invaluable in gathering support from local firms for school-to-work participation. Organizations such as the chambers or private industry councils have firms as members and have access to other local businesses. Moreover, these organizations have a broad mission--workforce development in general--similar to that of school-to-work, as well as administrative resources to support this mission. Programs in which trade associations are responsible for employer recruitment are generally most successful because of these connections and resources. In contrast, individual schools and school districts experience the greatest problems in recruiting employer partners. Without the network of business connections readily available to trade associations or individual firms, schools have more difficulty identifying potential employer partners, determining effective marketing approaches, and allocating necessary staff resources to this task.

- ***Engaging large, well-known employers to recruit other employers is a useful strategy.*** Well-known companies can help to recruit other employers. This can be accomplished through peer pressure (for example, a few large hospitals in Boston encouraging other Boston

hospitals to participate) or if the large company has some leverage over other local firms. For a Toledo, Ohio school-to-work program, representatives from the Caterpillar Corporation contacted its local suppliers and other subcontractors to find workplace positions for the Toledo students. Similarly, staff involved with a youth apprenticeship program in Flint, Michigan at a participating General Motors (GM) plant recruited from among other GM plants in the area.

- ***Expanding school-to-work requires careful coordination of employer recruitment among districts or schools in a region.*** Unless employer recruitment efforts are coordinated, expansion of school-to-work initiatives can create competition for employer commitments and burden on local firms. One approach to head off these potential problems is to develop a school-based, workplace management information system, which can document employer commitments, available slots, and current student assignments to work sites. Alternatively, districts or groups of districts (instead of individual schools) could assume central responsibility for recruiting and coordinating workplace positions for students.

- ***Training mentors is vital, especially in programs using a youth apprenticeship model.*** Work-site supervisors emphasize the value of gaining familiarity with adolescent behavior and issues. This exposure helps them more effectively encourage and guide students and monitor their workplace progress.

- ***Promoting school staff visits to work sites is valuable, but only with appropriate followup.*** Many school-to-work programs report on the "cultural" and "environmental" differences between educators and employers, as well as between schools and workplaces. Encouraging school staff members to spend time at relevant work sites is one way to overcome this barrier. However, staff exposure to work sites does not necessarily translate directly into changes in the classroom. Teachers may need encouragement to incorporate terminology, skills, and tasks identified at the work site into classroom activities. To make best use of staff development resources, school-to-work planners may want to consider training activities timed or structured to help teachers turn their visits into tangible curriculum products.

- ***Using technology in resourceful ways can make integration of school- and work-based learning easier.*** Technology can facilitate communication between teachers and employer staff members and reduce staff resource use. Telephones in classrooms help employers contact teachers. Fax machines can be used to compensate for lack of classroom phones and time to meet with workplace personnel; they allow employer and school staff to leave detailed messages for each other (not easily accomplished through a school office receptionist) and to provide and review documents, such as lesson plans or work-site training schedules, quickly. Computer E-mail can transmit information as well, allowing teachers, employer staff, and even students to use computer bulletin boards and direct links to exchange ideas about work- or career-related classroom lessons, workplace activities, or postsecondary options.

B. CONTINUING IMPLEMENTATION CHALLENGES

As a group, the demonstration sites have gone a long way in developing their programs. A majority have implemented most of the major components set forth in their original program models. On the basis

of several years of operational experience, many have tried to improve upon features in their initial plans. Other sites have had to modify their program designs to adapt to sudden changes in partners, economic climate, or other factors beyond their control. Some have been both blessed and burdened by substantial attention to and interest in their programs. Ahead of them are the potential rewards and difficulties of maintaining their site operations, and of expanding and broadening their programs to bring them more into line with initiatives promoted under the STWOA.

These and other school-to-work programs face five major challenges in continuing their initiatives. This is not to suggest that the demonstration sites have all been unsuccessful in these areas. However, school-to-work programs will need to be vigilant and creative in order to rise above these challenges.

1. Recruiting Students

School-to-work programs that prepare students for particular careers or occupations and include extensive work-based learning activities often have difficulty enrolling the desired number of participants. These programs, particularly youth apprenticeship models, currently face several obstacles in recruiting students:

- Stigma associated with occupationally oriented programs
- Student resistance to forsaking after-school, extracurricular activities for work-based learning
- Not enough students in the recruiting area with interest in the program's target occupation/industry
- Competition for participants with other school- or work-based programs
- Inaccurate perceptions and expectations about the target occupation among students and parent

Some of these barriers are likely to be reduced in well-implemented school-to-work systems, while others may become more prominent. For example, if *all* students were engaged in some type of career-focused program of study, negative perceptions of such programs would be substantially less. Structuring

school-to-work programs or strands around broader groupings of occupations than those targeted by the demonstration sites might generate enough interested students to support having each career strand or major. If schools were restructured to accommodate career strands, competition for participants could either increase or decrease. Depending on the size of the school, student interest might not be evenly distributed across career majors or might be skewed by gender, race/ethnicity, or academic ability. Such outcomes could generate rivalries among strands, or at least concern among school administrators. In addition, a school-to-work system will have to offer a variety of types of workplace experiences. If partnerships adopt unpaid workplace activities as the primary option, students may be less interested in forgoing extracurricular activities or afternoon homework for their workplace experiences, particularly in communities where regular, paid part-time jobs are available.

In an expanded system, questions may arise about how many and which students can have access to particular school-to-work activities. The demonstration programs found that screening students according to some measures of academic ability, motivation, and interest was critical to student retention and employer satisfaction. Enforcing these selection criteria often meant enrolling fewer students than applied. Eliminating such criteria to allow greater participation--more students with diverse levels of ability and interest in the occupation/industry--may alter the level of commitment from employers and the types of training and work experience they are willing to provide. Alternatively, school-to-work systems may have different selection criteria for different types of activities.

2. Recruiting Employers

Having a set of employer partners willing to provide workplace activities for students is crucial to the success of school-to-work reforms. Increasing numbers of firms are participating in these new initiatives. Recruitment of employers is a major challenge for school-to-work programs, however. Most of the demonstration sites find it difficult to recruit employers who are willing to provide students with the type of paid, ongoing work-site positions specified by the demonstration guidelines and idealized by the

STWOA. Programs that offer students job shadowing, work-site tours, or shorter-term work experience opportunities have had less difficulty obtaining employer commitments.

For the demonstration programs, this is likely to remain a substantial issue in the near future. Most of the sites are continuing with the program models they developed under the demonstration, offering extensive work-based learning activities. For them, the difficulties of ongoing recruitment of employers may even be exacerbated by competition for local employer commitments from other nearby schools and communities.

On the other hand, there is some possibility that obtaining workplace opportunities for students will eventually become easier as school-to-work efforts broaden. If the pool of participating employers in a community expands, peer pressure may encourage other firms to begin sponsoring student activities. As more large firms become active partners in school-to-work and their efforts are promoted, concerns among other firms about child labor laws and liability--often the first set of questions posed by contacted employers--may diminish because information on these topics is more readily available. Moreover, efforts to create school-to-work systems will inevitably include workplace activities of different intensities; recruiting employers for shorter-term, unpaid work-site exposure experiences will be easier than it was for the demonstration sites using a youth apprenticeship model.

3. Changing How Students Learn at School

An important objective of school-to-work reforms is changing how students learn, to increase what they learn. Students are expected to continue to master algebra, geometry, reading, writing, and other fundamental academic subjects. However, there is increasing consensus that students learn theoretical concepts best by applying them to real-world situations, including career-relevant examples and work-site tasks. This requires revising curriculum content, modifying instructional approaches, and helping teachers to adapt to new roles and methods. These school-based changes are likely to be small and incremental,

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particularly if emphasis in school-to-work development is on getting students into workplace experiences (as it appears to have been for many of the demonstration programs).

Most of the demonstration sites tried to put these new educational practices in place, with varying degrees of focus and success. A few, including some of the Pennsylvania Youth Apprenticeship Program (PYAP) sites, did change teaching methods and content significantly. They developed new curricula, implemented thematic contextual instruction, and involved students in activities and projects that took them out of the classroom and exposed them to the community and work sites. In other programs, commercial applied academic courses were available in some schools (a couple of sections of applied math or Principles of Technology), and these courses were recommended for participants; however, student participation in these courses varied. Some programs tried to train key teachers to develop and implement an applied approach to regular academic subjects, but actual implementation of new units and instructional methods was spotty. In some sites, little or no effort was made to change traditional teaching approaches, either by the demonstration itself or as part of other education reform efforts in participating schools.

School-to-work programs, particularly as they expand, face several challenges in substantively changing how students learn. Several of these barriers have been documented by this evaluation team and others: teacher resistance to new methods, need for intensive staff development, the additional expense in some cases of special contextual learning materials and lab equipment, and negative perceptions in some communities of curricula that appear to have a career or occupational focus. Most important, however, school-to-work programs must make applied learning a priority. This is a difficult choice, given pressures to demonstrate the existence of "work-based learning" to validate that they are, in fact, school-to-work initiatives.

4. Ensuring Students Are Learning on the Job

Students' activities at the work site are likely to benefit them in some way. Whether they are short-term or long-term, are paid or unpaid, or emphasize work experience or skill training, the workplace

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activities are unlikely to harm students' personal or educational development. These activities may, in fact, help them gain self-confidence and maturity and choose or plan for careers more effectively. Maximizing these benefits, however, depends largely on which types of workplace activities are made available.

Most of the demonstration programs, and other evolving school-to-work efforts, link students with part-time jobs. Some also offer job-shadowing experiences prior to placement in jobs, others rely strictly on these short-term career exposure activities, and some provide more formal skill training. Regular, after-school employment is likely to remain a primary student experience in school-to-work initiatives, however.

This reliance on part-time jobs is not unexpected or necessarily negative. Program staff members devote considerable effort to obtaining commitments from employers for student workplace positions, and it is not unreasonable that employers expect students to contribute to production or services in return for wages. After-school jobs can provide students with a strong resume, work ethics, exposure to an industry and at least one occupation within that industry, opportunities to obtain career advice from supervisors and colleagues, and the chance to try new things. Some jobs can also help students reinforce their basic skills (math, reading, communication) or develop technical skills.

These outcomes are more likely if program staff members pay attention to and carefully structure what students do at the work site. Finding the time and effort required to obtain this information and to work with students and employer staff members to ensure a good learning experience is difficult and will remain a challenge for expanding school-to-work initiatives. Common criticisms of cooperative education programs include the lack of followup with students at the work site, the absence of a guarantee that students are "really learning something" at the work site, and the lack of a connection to school-based learning. If these new initiatives are to avoid similar criticisms, school-to-work staff will need to devote considerable resources to and establish more-concrete procedures for monitoring student employment.

5. Minimizing Costs

New initiatives, particularly those that involve disparate and unfamiliar organizations, are likely to cost some money. The amount of resources required and the cost of the new activities depend on the complexity of the models, the number of individuals served, and how different the initiative is from what existed previously. Keeping costs low raises the probability that initiatives will be adopted and institutionalized after special grant funds are gone.

The demonstration experience suggests that the costs of some types of school-to-work programs, particularly youth apprenticeship models, are up to 50 percent higher than the average per-pupil costs in the high schools of participating communities. These estimates include many start-up expenditures, including curriculum development and staff training, as well as ongoing coordination costs. As programs develop and grow in size, however, per-student costs for coordination are likely to decline because administrative costs, in particular, are spread over more students. Still, in some cases, even after several years of operation, per-student costs for school-to-work participants are about equal to or higher than those for vocational students.

The STWOA provides the impetus for lowering unit costs. First, the new legislation encourages the participation of more--perhaps all--students, which will inevitably lower the average cost of coordination activities. Second, the STWOA allows activities that are less intensive than those promoted by the demonstration; the cost of coordinating occasional job-shadowing experiences may be less than the cost of coordinating and monitoring paid, part-time jobs. For example, employer-recruiting expenditures are likely to decline if the workplace activities that employers are often more willing to provide are emphasized.

C. MOVEMENT TOWARD SCHOOL-TO-WORK SYSTEMS

Despite the inevitable challenges of modifying traditional practices, there is growing excitement and enthusiasm for implementing school-to-work reforms. Many of the demonstration grantee staff members

have been in demand--hosting information sessions, speaking at conferences, and consulting with other communities interested in learning more about school-to-work. More Tech-Prep consortia are beginning to plan for and operationalize some of the workplace components featured in the STWOA. The manner in which the demonstration programs are moving toward a system model provides some indication of how school-to-work initiatives may develop elsewhere.

Expanding the number of students served is a key part of transforming from a program to a system. To attract and accommodate additional students, the demonstration programs have been expanding in two ways. First, because it was difficult to recruit enough students interested in the target career within a single school or even several schools, some reached out to additional schools or school districts. Second, many of the sites added new programs targeted to different occupations; some are offering new programs within the same set of schools as a way of attracting more students, while others began new programs at schools that did not offer the original program in order to expand the program model to a greater number of schools. The most common new school-to-work program that demonstration grantees added focuses on health care occupations, although some sites have added programs that focus on business or finance, utilities, communications, and retail occupations. Several sites are continuing to add new occupations to their program offerings.

The two approaches for expansion have different levels of complexity. Adding schools often results in modification to program features (for example, not all schools could cluster students in key courses). However, competency objectives, basic curriculum units, scheduled special events, and, most important, the types of employers recruited can remain the same as when the program is run on a smaller scale. This strategy allows programs to spread certain planning and fixed program costs over a greater number of students, helping them to serve more students and lower per-student costs.

Adding occupations is more difficult. Sites must undertake essentially the same level of effort as was put into the development of the original program, including identifying appropriate schools and employers,

defining program goals, and developing new curricula. Sites benefit from their earlier experience planning and implementing a program model; therefore, not all costs are duplicated. However, they still invest substantial resources in developing the new programs. Thus, the per-student costs of the site programs are unlikely to decrease substantially, although the sites are able to serve more students.

Despite these expansion efforts, only one of the demonstration sites is currently implementing what could be called a system of school-to-work activities using its original program model. From the start, the Scripps Ranch High School initiative was designed to encompass the entire school. School activities have little structured career focus, and only a very small number of students have been placed in ongoing, paid workplace activities (primarily through the cooperative vocational education program). However, the school has succeeded in broadly engaging the business community in school activities and students in occasional, brief workplace visits. Employers visit classrooms as guest speakers on a frequent basis, all sophomores participate in a one-day job-shadowing experience, and other students take field trips and visit work sites with their classes on an ad hoc basis. The OaklandWorks youth academies and ProTech also serve large and increasing numbers of students. However, like other demonstration sites, they offer a single or small number of school-to-work occupational programs in each participating school and serve a relatively small proportion of juniors and seniors in those schools. Most of the schools participating in demonstration programs also have other small-scale, work-based learning programs, such as cooperative vocational education.

Moving the demonstration programs toward a school-to-work system also requires *institutionalizing* program activities. Program staff members must find ways to make school- and work-based learning experiences a routine option for students in participating schools. They need to obtain commitments from institutions to cover added costs for coordination, curriculum development, staff development, and other necessary school-to-work activities that go beyond those institutions' regular expenses.

One measure of the extent to which the demonstration programs have become institutionalized is their level of activity after the demonstration grants have expired. All of the site programs continue to operate in some capacity. Some have begun enrolling fewer participants than in earlier years, but others have expanded participation. Most sites offer students essentially the same school- and work-based components as they did while program activities were supported by the DOL grant. Even the level of coordination in most sites has remained constant.

Some of the school-to-work programs have been able to maintain their activities with institutional support. Programs that made small modifications to preexisting school- or work-based opportunities incur modest extra costs. Other sites in which grant funds were used largely for start-up activities no longer require the heavy resource investment now that the programs are operational. In both circumstances, employers and schools have been willing to shoulder the added costs of their respective activities. This outcome suggests that the "venture capital" approach of the STWOA--to provide funding only for start-up and early implementation activities--may well be successful and stimulate ongoing reforms.

Other sites are continuing their programs largely with the help of new grants (including STWOA funds) that completely or partially replace the DOL funds but are seeking permanent institutional support. These include some programs that have most extensively changed the nature of students' learning experiences. In some sites, including the PYAP, state funding will continue or will pick up some of the coordination costs previously covered by the DOL grant. Employer contributions help fund the nonprofit corporation that operates the Craftsmanship 2000 program (that entity has been retitled Career Partners and now includes several other work-based learning programs). ProTech staff members report that the Boston School Committee approved funds to cover school-to-work coordinators when external funding for these positions (originally provided by the Boston Private Industry Council out of the DOL grant) is exhausted. Supporters of ProTech have also submitted draft legislation to include a line item in the state budget for connecting activities statewide.

D. POLICY RECOMMENDATIONS

The results of the evaluation of the School-to-Work/Youth Apprenticeship Demonstration have some implications for federal policy formation and assistance on school-to-work issues. These are listed here as four recommendations. The broad recommendations, if implemented, are intended to help clarify what school-to-work systems are supposed to be and to refocus some of the effort on components that have the potential to improve the success of the greatest number of students. Sharpening the concept of school-to-work may be even more important now, with the growing certainty that there will be competition at the state and local levels over funding to stimulate these new initiatives.

1. ***Focus on school reform aspects of school-to-work.*** School curricula may hold the key to achieving school-to-work objectives. The curriculum reforms identified with school-to-work could increase students' interests in learning (thus fostering stronger basic skills) and improve career preparation. However, many sites are devoting a significant amount of resources and attention to obtaining work-site positions for students, often at the expense of school-based learning improvements. This is partly because participation in workplace activities is easier to define and to validate than is participation in school-based courses or programs of study that incorporate project-based, applied learning strategies. Because the availability of intensive workplace experiences may be limited in a broader school-to-work system, curriculum reform efforts are likely to benefit more students in the long run than is involvement in specific work-site activities.

2. ***Emphasize and define appropriate linkages to postsecondary education.*** The national School-to-Work Office can play an important role in disseminating information and providing technical assistance on secondary-postsecondary linkages. Currently, little information is available to school-to-work planners on how to facilitate enrollment in postsecondary education or training and which types of linkages are effective in different system models. This component of the STWOA has received relatively little attention so far, perhaps because planners are designing initiatives that begin with the early high school (or even middle school) years, and postsecondary transitions seem a long way off. However, the lack of emphasis on transition activities may be shortsighted. In the demonstration programs, some of these secondary-postsecondary linkages appeared to have a stronger influence than other school-based components on students' long-term outcomes.

3. ***Accelerate development of national skill standards.*** National efforts to develop skill standards in select occupations are under way but are taking time to come to fruition. Meanwhile, the STWOA encourages states and localities to begin efforts to develop their own versions of skill standards so that certificates of mastery can be awarded to students who complete school-to-work initiatives. These local efforts may not be cost-effective, however, for several reasons. First, state and local initiatives are unlikely to have the resources and expertise to develop industry-validated standards and certificates. Second, some communities

will engage students in such a widely diverse set of school- and/or work-based activities that well-defined skill standards for specific occupations--developed with industry input--would not be possible to prepare or perhaps even to implement. Moreover, some sites may be reluctant to focus program school- or work-based activities on specific job skills, preferring to emphasize broader and more transferable competencies. Thus, in some communities, skill standards for specific occupations will be less relevant. For these reasons, emphasis on developing skills standards should be at the federal level, allowing local (and perhaps even state) resources to be better spent on other school-to-work activities.

4. ***Acknowledge that a system means different levels of intensity for different students.*** School-to-work is currently being promoted as an initiative for all students. This uniform approach to school-based learning may serve American youths well--all students can benefit from activities that help them identify and chart a path toward a career, engage their interest and intellect through project-based, applied learning, and promote their transition to postsecondary education or training. Involvement in work-based learning is likely to vary for individual students, however. The demonstration experience suggests that the needs and preferences of individual employers may determine which students wind up in particular activities. Student interests also will affect the type and extent of their workplace experiences. Moreover, students are likely to benefit from workplace activities in different ways.

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APPENDIX A

DESCRIPTION OF DEMONSTRATION SITE PROGRAMS

Boston Private Industry Council. The Boston Private Industry Council has two grants from the U.S. Department of Labor. The first supports one of the initial school-to-work projects, *ProTech Health Care*, which began operating in school year 1991-1992. ProTech Health Care was designed to be a four-year program that prepares selected students from three Boston high schools for careers in health care and leads to an associate's degree. ProTech Health Care students enroll in the program as juniors and are generally grouped together in English and science classes, as well as in homeroom. Juniors spend one afternoon a week during the first semester at one of nine participating hospitals doing clinical rotations and observing different hospital departments. Students begin part-time employment at one of the hospitals during the second semester of their junior year if their grades, attendance, and behavior have been satisfactory. In their senior year, ProTech Health Care students are assessed for college readiness and can choose to take community college courses to strengthen their basic skills while they are finishing their high school requirements. After high school graduation, students attend either a two- or four-year college; those who pursue careers in health care will work part-time during the school year and full-time during summers at one of the partner hospitals. All participants, regardless of their postsecondary educational choices, receive counseling on college enrollment and retention from special program staff members.

The second grant supports *ProTech Financial Services*. This program began in fall 1993 to prepare selected students from three Boston high schools for careers in banking, insurance, or financial services. Like ProTech Health Care, this program involves students in unpaid work-site rotations in the first half of junior year, and paid jobs during the latter part of junior year and senior year of high school. Students are generally clustered in English and a business course during high school. ProTech Financial Services students also receive college counseling and support from program staff members.

Craftsmanship 2000. This project, which began operations in school year 1992-1993, is a three-year program that prepares selected students from public schools in the Tulsa, Oklahoma, metropolitan area for careers in metalworking. It culminates with a certificate of competency and the opportunity to receive

Illinois State Board of Education. The Illinois State Board of Education (ISBE) has sponsored youth apprenticeship sites in Rockford, Chicago, and Whitehall. The Rockford and Chicago sites became operational in school year 1992-1993 and prepare students for metalworking careers. The third site, Whitehall, began in fall 1993, preparing students for food service management.[2] Each site designed, developed, and manages its own program; ISBE offers technical assistance.

The Rockford site offers a four-year program that includes two years at a community college and leads to an associate's degree in a metalworking-related field. Starting in their junior year, students receive vocational instruction in a simulated work environment at an employer facility for half the day and attend academic classes at their high school the other half of the day. During the summer after 11th grade, students work full-time for six weeks, with one-week rotations through different sponsoring employers, and take a related community college course for two weeks. Senior year is similar to junior year, except that students also work part-time at a sponsoring employer. Students will be encouraged to attend Rock Valley Community College for at least two years (part- or full-time) after high school graduation while working. Although the project began its first year with students selected from a single high school, it currently draws students from seven high schools.

The Chicago site prepares selected students from Senn Metropolitan Academy for careers in metalworking during a two-year program that results in a high school diploma with a list of metalworking competencies. Twice during junior year and senior year, students visit employer sponsors for an orientation and job-shadowing experience. Program staff members try to recruit employer partners to employ students full-time during the summer and part-time during senior year. Students are encouraged to attend classes in the metalworking program at Triton or Daley Community Colleges after high school graduation, and to transfer to Illinois Institute of Technology to obtain a bachelor's degree while working in the metalworking industry.

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[2]The Whitehall site was not included in the evaluation.

credits toward an associate's degree in applied science. In the first two years, Craftsmanship 2000 students attend Tulsa Technology Center instead of their regular high schools to receive all academic and vocational-technical instruction.[1] Students receive a bimonthly stipend for participation in the school and work components of the program, as well as bonuses for good academic performance. The sponsoring companies of Craftsmanship 2000 pay students during the summers to work on special projects at work sites under the supervision of employee mentors to reinforce the metalworking skills learned during the previous school year. During the first half of the third year of the program--after high school graduation--students continue to attend vocational classes at the Tulsa Technology Center. During the last half of the third year of the program, sponsoring companies will provide work-site instruction. After program completion at the end of three years, Craftsmanship 2000 students may attend Tulsa Junior College part- or full-time and receive two and a half credits toward an associate degree in metalworking for their program participation.

Gwinnett Youth Apprenticeship. This program is administered by the Gwinnett County school system and has been operating at three of the county's high schools since fall 1993. The program offers interested juniors and seniors with defined career and postsecondary plans credit for approved paid work experience in their chosen field. Students either find jobs on their own or are assisted in obtaining one by the program coordinator assigned to their high school. Currently, there is no specific occupational focus (and therefore no core curriculum) in high school. However, participating students are required to take a weekly, noncredit, work readiness seminar and, on their own time, must complete a project demonstrating how their work experience relates to the Secretary's Commission on Achieving Necessary Skills (SCANS) goals.

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[1]Starting in fall 1995, participating students will take academic classes at their home high schools instead of at the Technology Center and will be paid only for the workplace components of the program.

Manufacturing Technology Partnership (MTP). The Manufacturing Technology Partnership was initiated and first implemented in fall 1992 by a General Motors (GM) plant and its United Auto Workers (UAW) local in an effort to increase the number of minority and female candidates for its Skilled Trades Apprenticeship Program. By 1993, MTP expanded to include local small- and mid-sized companies as employer partners. Juniors and seniors receive academic instruction at their home high school and vocational instruction for two and a half hours each day at the local vocational-technical school, which is responsible for administering MTP. Students are placed in paid, afternoon work experiences, which differ for students placed at GM compared with those at other firms. Students at GM receive both academic and technical skill instruction at a special GM training center, job shadow experienced tradespersons, and prepare explicitly for the GM apprenticeship test. MTP students hired by other companies receive on-the-job training. All students are at a work site for two hours each day during the school year; some work up to full-time during the summers.

The program continues into the postsecondary level for students who take and pass the GM apprenticeship test at the end of senior year. Those who score high enough are eligible for openings at any of the GM plants and entry into a registered skilled trades apprenticeship; they are also eligible for any other nonskilled trades production position openings at GM. If no positions are available, a student can enroll in one of four GM-approved programs--manufacturing technology, electrical engineering, drafting and design, or fluid power and robotics--at one of the two local community colleges for two years at GM's expense. During the two years the students are enrolled in college, they will continue to be eligible for GM apprenticeship and production positions.

MechTech, Inc. This four- to six-year program prepares selected students from high schools in the Baltimore area for careers in the machine tool trades. It is administered by MechTech, Inc., which employs the students and is reimbursed by employers for students' services. The program includes registration as an apprentice with the Maryland Apprenticeship and Training Council. High school juniors and seniors

receive academic instruction in their local high schools, vocational instruction in the area vocational-technical school, part-time work experience after school, and full-time work experience during the summer. Following high school, the apprentices work full-time and take courses at Cantonsville Community College in computer-integrated manufacturing. These courses provide credit toward an associate's degree. Students may register as a journeyperson after 8,000 hours of relevant work experience.

Middle Georgia Aerospace. Initiated by local aerospace companies, this three-year program prepares students for careers as aircraft structural mechanics. The program, which began operating in fall 1993, selects high school juniors from three school districts, each paired with a postsecondary technical school and one of the three aerospace firms in the partnership--Boeing, Northrop, or McDonnell-Douglas. Students receive their academic and first-year vocational instruction from their high school and second-year vocational training at their partner postsecondary technical school. They are encouraged to enroll in applied academic courses but may choose college preparatory courses instead. Students are assigned workplace mentors, with whom they meet at special events during the school year; they also participate in a two-week, paid job-shadowing experience during the summer after junior year that provides them with exposure to all facets of aerospace plant operations.

Articulation agreements between the districts and their partner technical schools facilitate students' enrollment in and completion of a postsecondary aircraft structural program. Students receive credits for the high school component of the program that are equivalent to one year of the postsecondary program; a state grant program pays their tuition.

OaklandWorks. This project, which began in summer 1993, is designed to enhance an existing career academy/magnet program in four high schools in Oakland, each of which focuses on a different occupational theme: media, health and bioscience, law and government, and computers. Students in the career academies are clustered in three academic courses related to the occupational focus of the academy, as well as a relevant lab course. Work-related experiences begin in the 10th grade, with the assignment

of each student to a business mentor. In 11th grade, students may participate in job shadowing. The following summer, they are provided a paid internship position for several weeks and must attend a related work readiness class about once a week. For students who intend to enter employment directly after high school, the program offers short-term internships in the spring of the senior year.

Pennsylvania Youth Apprenticeship Program (PYAP). PYAP was originally designed to be a four-year program in metalworking beginning in 11th grade. The program model was developed at the state level by the Pennsylvania Department of Commerce. It is a school-within-a-school program in which participating students take most or all of their classes together. Three days a week, 11th- and 12th-grade students attend academic classes based on an interdisciplinary, applied curriculum designed especially for the program. Students also work two full days a week in metalworking firms. After high school, students may continue working and are encouraged to continue their education in relevant community college programs. However, there are currently no formal links between the program and postsecondary institutions. Employers in two sites contribute an amount equal to 10 percent of a student's wages to a scholarship fund, which the student can use to pay for occupationally related postsecondary courses.

The program model is being implemented in many communities around the state. The Lycoming County site began operating in school year 1991-1992. Five other sites--Lancaster, Montgomery County, Pittsburgh, Philadelphia, and York--began operations the following year.[3]

Scripps Ranch High School. This project is developing work-site experiences and other career development activities for a new high school that opened in fall 1993. All students (grades 9 to 12) are assigned to an advisory class on the basis of their declared interest in one of four career paths--engineering

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[3]Site visits were made to the Lycoming, Philadelphia, and York sites. The information in this report on the PYAP program relates only to these three sites.

technology, biotechnology, business, or arts and humanities.[4] The curriculum for this half-hour period (scheduled Monday through Thursday) is evolving, but it generally covers career development, work readiness, and educational planning activities; it was developed with input from the business community. This school includes course periods of 105 minutes and an alternating day course schedule, designed to facilitate interdisciplinary instruction, use of guest speakers, and special career-oriented educational events. All 10th-grade students participate in a one-day job-shadowing experience, but all teachers are encouraged to invite guest speakers to the classroom and arrange field trips for students to improve exposure to the world of work and careers. A relatively small group of high school students (approximately 100) enrolled in a special Youth Apprenticeship group and are clustered in one of three advisory classes. These students focus more on work readiness and participate in work-site visits and job-shadowing activities more frequently than other students.

Sears/Davea. This project, which began operations in school year 1991-1992, prepares high school students for careers in the appliance repair industry. It is a collaborative project among the grantee, the National Alliance of Business, Sears, and the DuPage County Area Vocational Education Authority (Davea). Sears developed a comprehensive curriculum that combines principles of physics and applied technical exercises in a course on appliance repair that is offered at the Davea career center. Students attend academic classes in their high schools for part of the day and spend the other half of the day at Davea. Work-site experiences involve rotating students individually through one-week internships at three different Sears service center departments--parts, small engines, and appliance repair. Students observe and work alongside experienced Sears repair technicians who have been selected to supervise interns.

Seminole County/Siemens. This project, which began its first year of operations in school year 1992-1993, was initiated by the Siemens Stromberg-Carlson company to train electronic technicians. The

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[4]High school staff members were considering alternative advisory assignment strategies for school year 1995-1996, based on two years of experience. Instead of dividing students by career interests, staff members may assign students to advisors on the basis of hobbies or other interests.

project recruits seniors from Seminole County's two high school electronics programs and provides work-site experience at Siemens.[5] In high school, students take courses recommended for the Tech-Prep electronics sequence, or their equivalent. They spend three hours a day, twice a week, at the Siemens training facility receiving instruction in job-related skills, using a curriculum adapted from the one used by Siemens in its apprenticeship program in Germany. Performance is reviewed at the end of the school year to determine whether students will be allowed to continue in the program.

Following high school, students who continue will work part-time at Siemens and enroll in the two-and-a-half-year apprenticeship program the company has established at the local community college. The students spend the first year of the postsecondary employment at the training center improving and expanding their skills. They spend the remaining one and a half years job shadowing at the local Siemens plant. Siemens will pay college fees for students still in the program and provide them with a stipend. These students will receive an associate's degree as an electronic technician.

Toledo Private Industry Council. This project, which enrolled its first students in spring 1993, is a two-year program that prepares selected students from three Toledo-area high schools for careers in robotics, industrial automation, drafting and architecture, computer-aided design and manufacturing, medical and dental assisting, building and carpentry, insurance data processing, and office skills. Project staff members interview and evaluate the best juniors in the relevant vocational-technical classes and match them with employers according to employer needs and student abilities, desires, and strengths. Students begin part-time employment when an appropriate work-site position is found and can work full-time during the summer and part-time during senior year. Academic teachers relate their curriculum to the vocational areas when possible; classes sometimes are taught jointly by a vocational teacher and an academic teacher. After high school graduation, students will receive a diploma, a certificate of competency, and a portfolio that will document their competencies and work experience and will include a resume and references.

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[5]In the first year, the program recruited both juniors and seniors.

Workforce LA Youth Academies. This project began as a citywide effort in Los Angeles to encourage continued school attendance and promote general employability skills among high school students at risk of dropping out. More than 1,500 students--high school juniors and seniors--were placed in paid, part-time employment four afternoons a week to gain work experience. They attended regular high school classes and spent one afternoon a week in a special class to improve basic skills and work readiness. Most students worked in Los Angeles city government agencies; a few were employed at a major telecommunications firm. Students working in city agencies were required to complete 30 hours of community service annually. The jobs were generally in service occupations, three-quarters of which were clerical. The program was substantially scaled back due to lack of city funding for work-site positions; approximately 100 students participate.

APPENDIX B

STUDENT DATA FORMS

SCHOOL-TO-WORK TRANSITION/YOUTH APPRENTICESHIP DEMONSTRATION

BASELINE DATA

IDENTIFICATION

1. **NAME:** _____

2. **MPRID:** |0|1|_|_|_|_|

3. **SSN:** |_|_|_|-|_|_|-|_|_|_|_|

4. Program Entry Date: |__|__| |__|__| 19|__|__|
   Month Day Year

5. Grade Level at Entry: 9 10 11 12
   (Circle One)

6. Youth Apprenticeship Occupational Field:

   _____

DEMOGRAPHIC INFORMATION

7. Date of Birth: |__|__| |__|__| 19|__|__|
   Month Day Year

8. Primary Language Spoken at Home: _____

9. Ethnic Group: *(Check (✓) One)*

   1. ___ Black (non-Hispanic)
   2. ___ Hispanic
   3. ___ White (non-Hispanic)
   4. ___ Asian/Pacific Islander
   5. ___ Other (*Specify:* _____)

10. Sex: *(Check (✓) One)*

    1. ___ Male
    2. ___ Female

11. Participant is a Parent: *(Check (✓) One)*

    1. ___ No
    2. ___ Yes

12. Participant Lives Alone: *(Check (✓) One)*

    1. ___ No
    2. ___ Yes

PRE-PROGRAM PERFORMANCE MEASURES

13. Attendance:

    1. Days Enrolled |__|__|__|
    2. Days Absent |__|__|__|

    13a. Attendance Period: *(Check (✓) One)*

    1. ___ Prior School Year
    2. ___ Prior Semester
    3. ___ Other (*Specify:* _____)

14. Previous Year GPA: |__|__|.|__|__|

15. Most Recent Standardized Test Score Prior to Program Entrance:

    15a. Test Name or Type:

    _____

    15b. Date When Test Administered:

    |_|_| |_|_| 19|_|_|
    Month Day Year

    15c. Test Scores:

Components	Scores
Math	_____
Reading	_____
Language	_____

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SCHOOL-TO-WORK TRANSITION/YOUTH APPRENTICESHIP DEMONSTRATION

BASELINE DATA

IDENTIFICATION

1. **NAME:** _____

2. **MPRID:** |0|1|_|_|_|

3. **SSN:** |_|_|_|-|_|_|-|_|_|_|_|

4. Program Entry Date: |__|__| |__|__| 19|__|__|
   Month Day Year

5. Grade Level at Entry: 9 10 11 12
   (Circle One)

6. Youth Apprenticeship Occupational Field:

   _____

DEMOGRAPHIC INFORMATION

7. Date of Birth: |__|__| |__|__| 19|__|__|
   Month Day Year

8. Primary Language Spoken at Home: _____

9. Ethnic Group: *(Check (✓) One)*

   1. ___ Black (non-Hispanic)
   2. ___ Hispanic
   3. ___ White (non-Hispanic)
   4. ___ Asian/Pacific Islander
   5. ___ Other (*Specify:* _____)

10. Sex: *(Check (✓) One)*

    1. ___ Male
    2. ___ Female

11. Participant is a Parent: *(Check (✓) One)*

    1. ___ No
    2. ___ Yes

12. Participant Lives Alone: *(Check (✓) One)*

    1. ___ No
    2. ___ Yes

PRE-PROGRAM PERFORMANCE MEASURES

13. Attendance:

    1. Days Enrolled |__|__|__|
    2. Days Absent |__|__|__|

    13a. Attendance Period: *(Check (✓) One)*

    1. ___ Prior School Year
    2. ___ Prior Semester
    3. ___ Other (*Specify:* _____)

14. Previous Year GPA: |__|__|.|__|__|

15. Most Recent Standardized Test Score Prior to Program Entrance:

    15a. Test Name or Type:

    _____

    15b. Date When Test Administered:

    |_|_| |_|_| 19|_|_|
    Month Day Year

    15c. Test Scores:

Components	Scores
Math	_____
Reading	_____
Language	_____

MPRID: |0|1|_|_|_|_|_| NAME: _____

SCHOOL-TO-WORK TRANSITION/YOUTH APPRENTICESHIP DEMONSTRATION

PROGRAM ACTIVITY AND INTERIM OUTCOMES

I. HIGH SCHOOL

A. Curriculum, GPA, and Attendance:

Period	Course Credits Earned: Math/Sci	Voc-Tech	English	SS/History	Other	GPA	Attendance: Days Absent	Days Enrolled or	% Days Absent
___/___ to ___/___	____	____	____	____	____	____	|_|_|	|_|_|	|_|_|%
___/___ to ___/___	____	____	____	____	____	____	|_|_|	|_|_|	|_|_|%
___/___ to ___/___	____	____	____	____	____	____	|_|_|	|_|_|	|_|_|%
___/___ to ___/___	____	____	____	____	____	____	|_|_|	|_|_|	|_|_|%

B. Graduation

High School Graduation Date: |__|__| |__|__| 19 |__|__|
MONTH DAY YEAR

II. COLLEGE

A. Curriculum, GPA, and Occupational Focus

Period	Course Credits Earned: Math/Sci	Occupational	English	SS/History	Other	GPA	Intended Major/ Occupational Certificate
___/___ to ___/___	____	____	____	____	____	____	_____
___/___ to ___/___	____	____	____	____	____	____	_____
___/___ to ___/___	____	____	____	____	____	____	_____
___/___ to ___/___	____	____	____	____	____	____	_____

B. Degree/Certificate Attainment

Date Degree/Certificate Awarded: |__|__| |__|__| 19 |__|__|
MONTH DAY YEAR

Occupational Field/Major: _____

Type of Degree/Certificate: *(Check (✓) One)*

1. ____ A.A.
2. ____ 1 Year Certificate
3. ____ 2 Year Certificate
4. ____ B.A.
5. ____ B.S.

III. IN-PROGRAM EMPLOYMENT

Type (Check (✓) One)	Hours Per Week	Employer	Job Title	START: Date	START: Wage	STOP: Date	STOP: Wage
1 ☐ Summer 2 ☐ School Year	|__|__|	_____	_____	__/__/__	$ __.__	__/__/__	$ __.__
1 ☐ Summer 2 ☐ School Year	|__|__|	_____	_____	__/__/__	$ __.__	__/__/__	$ __.__
1 ☐ Summer 2 ☐ School Year	|__|__|	_____	_____	__/__/__	$ __.__	__/__/__	$ __.__

APPENDIX C

DETAILED STUDENT DATA TABLES, BY SITE

TABLE C.1

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH--HEALTH CARE

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled	87	85		76
Date enrolled	Sept. 1991 (85) Oct. 1991 (1) Dec. 1991 (1)	Sept. 1992 (72) Oct. 1992 (9) Nov. 1992 (2) Feb. 1993 (2)		Sept. 1994 (76)
Demographic Characteristics				
Age at Entry				
% 13 to 14	0.0	0.0		1.4
% 15 to 16	63.2	70.4		66.2
% 17 to 18	26.4	25.9		28.4
% 18+	10.3	3.7		4.1
(Average)	(16.9)	(16.8)		(16.7)
Grade Level at Entry				
% 10th	2.3	0.0		0.0
% 11th	93.1	100.0		98.7
% 12th	4.6	0.0		1.3
Percentage English is Primary Language	59.8	63.2		NA
Race/Ethnicity				
% Black	41.2	60.4		44.0
% Hispanic	30.6	24.7		38.7
% White (non-Hispanic)	18.8	8.6		5.3
% Asian/Pacific Islander	3.6	3.7		2.7
% Other	5.9	3.7		9.3
Sex				
% Male	30.6	40.2		30.3
% Female	69.4	59.8		69.7
Percentage Who Are Parents	3.5	8.1		NA
Percentage Who Live Alone	0.0	0.0		NA
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*	88.7	92.5		NA
Average Pre-Program GPA*	2.5	2.5		NA
Most Recent Standardized Test Scores				
Test name or type	MET	MET		NA
Components/scores				
Math	42.4	39.3		NA
Reading	41.8	41.1		NA
Language	--	--		NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year.

NA = not available.

TABLE C.2

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH–FINANCIAL

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled			72	68
Date enrolled			Sept. 1993 (69)	Sept. 1994 (68)
			Oct. 1993 (1)	
			Feb. 1994 (2)	
Demographic Characteristics				
Age at Entry				
% 13 to 14			1.4	0.0
% 15 to 16			47.2	61.8
% 17 to 18			40.3	32.4
% 18+			11.1	4.4
(Average)			(17.1)	(16.6)
Grade Level at Entry				
% 10th			0.0	0.0
% 11th			100.0	100.0
% 12th			0.0	0.0
Percentage English is Primary Language				
Race/Ethnicity				
% Black			40.9	35.8
% Hispanic			31.0	35.8
% White (non-Hispanic)			5.6	9.0
% Asian/Pacific Islander			21.1	14.9
% Other			1.4	4.5
Sex				
% Male			27.8	42.7
% Female			72.2	57.4
Percentage Who Are Parents			NA	NA
Percentage Who Live Alone			NA	NA
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]			NA	NA
Average Pre-Program GPA[a]			NA	NA
Most Recent Standardized Test Scores				
Test name or type			NA	NA
Components/scores				
Math			NA	NA
Reading			NA	NA
Language			NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year.

NA = not available.

TABLE C.3

CRAFTSMANSHIP 2000 (TULSA)

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		17	11	10
Date enrolled		Aug. 1992 (14) Jan. 1993 (3)	Aug. 1993 (11)	Aug. 1994 (10)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		35.3	54.5	50.0
% 17 to 18		52.9	45.5	40.0
% 18+		11.8	0.0	10.0
(Average)		(17.0)	(16.5)	(16.8)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		82.4	100.0	100.0
% 12th		17.6	0.0	0.0
Percentage English is Primary Language		100.0	100.0	100.0
Race/Ethnicity				
% Black		17.6	54.5	10.0
% Hispanic		0.0	0.0	0.0
% White (non-Hispanic)		82.4	45.5	80.0
% Asian/Pacific Islander		0.0	0.0	10.0
% Other		0.0	0.0	0.0
Sex				
% Male		82.4	72.7	80.0
% Female		17.6	27.3	20.0
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]		95.1	95.7	97.2
Average Pre-Program GPA[a]		2.55	2.66	2.63
Most Recent Standardized Test Scores				
Test name or type		ITBS (11)	ITBS (11)	TAP (7)
Components/scores				
Math		10.9	11.5	10.5
Reading		10.3	11.8	9.7
Language		7.0	10.6	8.4

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year

TABLE C.4

GWINNETT YOUTH APPRENTICESHIP PROGRAM

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled			52	48
Date enrolled			Aug. 1993 (8) Jan. 1994 (42) Feb. 1994 (2)	Aug. 1994 (37) Jan. 1995 (11)
Demographic Characteristics				
Age at Entry				
% 13 to 14			0.0	0.0
% 15 to 16			1.9	0.0
% 17 to 18			76.9	85.4
% 18+			21.2	14.6
(Average)			(18.1)	(17.6)
Grade Level at Entry				
% 10th			0.0	0.0
% 11th			7.7	8.3
% 12th			92.3	91.7
Percentage English is Primary Language			98.1	100.0
Race/Ethnicity				
% Black			3.9	0.0
% Hispanic			1.9	0.0
% White (non-Hispanic)			94.2	100.0
% Asian/Pacific Islander			0.0	0.0
% Other			0.0	0.0
Sex				
% Male			53.9	41.7
% Female			46.2	58.3
Percentage Who Are Parents			0.0	0.0
Percentage Who Live Alone			0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*			93.0	93.3
Average Pre-Program GPA*			2.87	2.82
Most Recent Standardized Test Scores				
Test name or type			GABS (27)	GA HS GRAD EXAM (29)
Components/scores			BST (11)	GABS (11)
Math			GABS 324.8	H.S. GRAD 541.7
Reading			GABS 327.9	--
Language			GABS 346.7	H.S. GRAD 547.8

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year or prior semester.

TABLE C.5

ILLINOIS STATE BOARD OF EDUCATION--ROCKFORD

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, AND INTERIM OUTCOMES

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		15	26	34
Date enrolled		Aug. 1992 (15)	Aug. 1993 (25) June 1993 (1)	Aug. 1994 (31) June 1994 (3)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		40.0	57.9	45.5
% 17 to 18		60.0	42.1	54.5
% 18+		0.0	0.0	0.0
(Average)		(16.8)	(16.5)	(16.1)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		100.0	96.2	91.2
% 12th		0.0	3.9	8.8
Percentage English is Primary Language		100.0	96.2	100.0
Race/Ethnicity				
% Black		0.0	0.0	0.0
% Hispanic		6.7	3.9	0.0
% White (non-Hispanic)		93.3	96.2	97.1
% Asian/Pacific Islander		0.0	0.0	0.0
% Other		0.0	0.0	2.9
Sex				
% Male		53.3	92.0	79.4
% Female		46.7	8.0	20.6
Percentage Who Are Parents		0.0	0.0	5.9
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*		98.4	97.8	98.3
Average Pre-Program GPA*		2.43	2.84	2.96
Most Recent Standardized Test Scores				
Test name or type		TAP (15)	TAP (18) Stanford (3)	TAP (15) GAP (8) Stanford (7)
Components/scores				
Math		TAP 57.2	TAP 67.6	TAP 61.9
Reading		TAP 50.5	TAP 69.6	TAP 58.1
Language		TAP 54.7	TAP 61.6	TAP 55.3

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year.

TABLE C.6

ILLINOIS STATE BOARD OF EDUCATION–CHICAGO

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		26	29	33
Date enrolled		Sept. 1992 (26)	Sept. 1993 (29)	Sept.1994 (33)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		19.2	24.1	59.4
% 17 to 18		65.4	55.2	37.5
% 18+		15.4	20.7	3.1
(Average)		(17.5)	(17.6)	(16.1)
Grade Level at Entry				
% 10th		3.9	0.0	0.0
% 11th		46.2	58.6	100.0
% 12th		50.0	41.4	0.0
Percentage English is Primary Language		38.5	44.8	33.3
Race/Ethnicity				
% Black		23.1	44.8	30.3
% Hispanic		53.9	17.2	36.4
% White (non-Hispanic)		7.7	17.2	12.1
% Asian/Pacific Islander		7.7	20.7	21.2
% Other		7.7	0.0	0.0
Sex				
% Male		100.0	89.7	78.8
% Female		0.0	10.3	21.2
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*		95.3	91.5	88.3
Average Pre-Program GPA*		2.16	1.82	2.21
Most Recent Standardized Test Scores				
Test name or type		GMG/SM (25)	GMG/SM (27)	GMG/SM (32)
Components/scores				
Math		8.22	3.00	4.00
Reading		8.45	8.38	8.61
Language		7.98	7.22	7.60

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

* Prior school year or prior semester.

TABLE C.7

MANUFACTURING TECHNOLOGY PARTNERSHIP (FLINT)

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		50	54	52
Date enrolled		Sept. 1992 (50)	Sept. 1993 (54)	Sept. 1994 (52)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		34.0	61.1	59.6
% 17 to 18		64.0	38.9	40.4
% 18+		2.0	0.0	0.0
(Average)		(16.9)	(16.4)	(16.4)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		51.0	100.0	100.0
% 12th		49.0	0.0	0.0
Percentage English is Primary Language		98.0	98.2	100.0
Race/Ethnicity				
% Black		78.0	42.6	34.6
% Hispanic		8.0	3.7	1.9
% White (non-Hispanic)		12.0	46.3	53.9
% Asian/Pacific Islander		2.0	1.9	3.9
% Other		0.0	5.6	5.8
Sex				
% Male		60.0	57.4	55.8
% Female		40.0	42.6	44.2
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]		97.6	97.2	96.2
Average Pre-Program GPA[a]		2.78	2.89	3.03
Most Recent Standardized Test Scores				
Test name or type		GMA/ICS (47)	ICSP	NA
Components/scores				
Math		69.3	81.1	
Reading		–		
Language		–		

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a]Prior school year or prior semester.

NA = not available.

TABLE C.8

MIDDLE GEORGIA AEROSPACE

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled			39	41
Date enrolled			July 1993 (39)	August 1994 (33) March 1995 (8)
Demographic Characteristics				
Age at Entry				
% 13 to 14			0.0	0.0
% 15 to 16			36.1	21.9
% 17 to 18			61.1	78.1
% 18+			2.8	0.0
(Average)			(16.8)	(17.0)
Grade Level at Entry				
% 10th			0.0	0.0
% 11th			100.0	80.5
% 12th			0.0	19.5
Percentage English is Primary Language			100.0	97.6
Race/Ethnicity				
% Black			20.5	34.2
% Hispanic			0.0	0.0
% White (non-Hispanic)			79.5	65.9
% Asian/Pacific Islander			0.0	0.0
% Other			0.0	0.0
Sex				
% Male			76.9	73.2
% Female			23.1	26.8
Percentage Who Are Parents			0.0	0.0
Percentage Who Live Alone			0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*			96.0	97.2
Average Pre-Program GPA*			2.63	2.55
Most Recent Standardized Test Scores				
Test name or type			ITBS (25) PSAT (13) SAT (1)	PSAT (23) GHSGT (11) ITBS (4)
Components/scores				
Math			ITBS 229.9	PSAT 34.3
Reading			ITBS 238.7	PSAT 32.5
Language			ITBS 266.8	—

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year or prior semester.

TABLE C.9

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–LYCOMING

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled	13	12	16	17
Date enrolled	Sept. 1991 (13)	June 1992 (2) Aug. 1992 (10)	Aug. 1993 (15) Sept. 1993 (1)	Aug. 1994 (17)
Demographic Characteristics				
Age at Entry				
% 13 to 14	0.0	0.0	0.0	0.0
% 15 to 16	38.5	8.3	40.0	29.4
% 17 to 18	53.9	91.7	60.0	64.7
% 18+	7.7	0.0	0.0	5.9
(Average)	(17.0)	(17.1)	(17.0)	(18.0)
Grade Level at Entry				
% 10th	0.0	0.0	12.5	0.0
% 11th	100.0	83.3	62.5	88.2
% 12th	0.0	16.7	25.0	11.8
Percentage English is Primary Language	100.0	100.0	100.0	100.0
Race/Ethnicity				
% Black	0.0	0.0	0.0	0.0
% Hispanic	0.0	0.0	6.2	0.0
% White (non-Hispanic)	100.0	100.0	87.5	100.0
% Asian/Pacific Islander	0.0	0.0	0.0	0.0
% Other	0.0	0.0	6.3	0.0
Sex				
% Male	100.0	91.7	87.5	100.0
% Female	0.0	8.3	12.5	0.0
Percentage Who Are Parents	0.0	0.0	0.0	0.0
Percentage Who Live Alone	0.0	0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*	88.3	94.7	95.7	91.6
Average Pre-Program GPA*	2.53	2.73	2.58	2.66
Most Recent Standardized Test Scores				
Test name or type	NA	CTBS (6) A&P (1)	CTBS (5) IACT (1)	NA
Components scores				
Math		CTBS 61.3	CTBS 76.5	
Reading		CTBS 66.3	CTBS 88.2	
Language		CTBS 76.5	CTBS 99.0	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year.

NA = not available.

TABLE C.10

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--MONTGOMERY

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		14	14	27
Date enrolled		Sept. 1992 (14)	Sept. 1993 (13) Jan. 1994 (1)	Sept. 1994 (27)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		38.5	27.3	52.9
% 17 to 18		61.5	72.7	47.1
% 18+		0.0	0.0	0.0
(Average)		(16.8)	(17.3)	(16.6)
Grade Level at Entry				
% 10th		7.1	0.0	0.0
% 11th		85.8	100.0	100.0
% 12th		7.1	0.0	0.0
Percentage English is Primary Language		100.0	92.9	100.0
Race/Ethnicity				
% Black		0.0	0.0	0.0
% Hispanic		0.0	7.1	0.0
% White (non-Hispanic)		100.0	92.9	100.0
% Asian/Pacific Islander		0.0	0.0	0.0
% Other		0.0	0.0	0.0
Sex				
% Male		100.0	92.9	44.4
% Female		8.3	7.1	55.6
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)		90.9[a]	92.1[a]	94.6[b]
Average Pre-Program GPA[a]		2.32	2.20	2.60
Most Recent Standardized Test Scores				
Test name or type		CTBS (8) Stanford (3)	NA	NA
Components/scores				
Math		CTBS 734.8		
Reading		CTBS 765.5		
Language		CTBS 732.6		

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year.

[b] Prior semester.

NA = not available.

TABLE C.11

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–PHILADELPHIA

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		10	5	12
Date enrolled		Sept. 1992 (9) Dec. 1992 (1)	March 1994 (4) April 1994 (1)	July 1994 (1) Sept. 1994 (1) Oct. 1994 (3) Nov. 1994 (3) Dec. 1994 (2) Jan. 1995 (2)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		20.0	20.0	8.3
% 17 to 18		40.0	80.0	83.3
% 18+		40.0	0.0	8.3
(Average)		(18.0)	(17.2)	(17.3)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		40.0	60.0	41.7
% 12th		60.0	40.0	58.3
Percentage English is Primary Language		90.0	100.0	83.3
Race/Ethnicity				
% Black		40.0	20.0	16.7
% Hispanic		10.0	0.0	0.0
% White (non-Hispanic)		50.0	80.0	75.0
% Asian/Pacific Islander		0.0	0.0	8.3
% Other		0.0	0.0	0.0
Sex				
% Male		100.0	100.0	83.3
% Female		0.0	0.0	16.7
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]		85.1	87.3	91.0
Average Pre-Program GPA[a]		1.60	1.83	2.03
Most Recent Standardized Test Scores				
Test name or type		PCT	PCT	PCT
Components/scores				
Math		54.9	69.0	62.0
Reading		45.6	65.8	50.9
Language		–	–	–

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year.

TABLE C.12

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–PITTSBURGH

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		11	15	16
Date enrolled		Sept. 1992 (6) Feb. 1993 (5)	Sept. 1993 (15)	Sept. 1994 (16)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		45.5	53.3	50.0
% 17 to 18		54.5	46.7	50.0
% 18+		0.0	0.0	0.0
(Average)		(16.6)	(16.5)	(16.6)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		100.0	100.0	100.0
% 12th		0.0	0.0	0.0
Percentage English is Primary Language		100.0	100.0	100.0
Race/Ethnicity				
% Black		72.7	86.7	68.8
% Hispanic		0.0	0.0	0.0
% White (non-Hispanic)		27.3	13.3	31.2
% Asian/Pacific Islander		0.0	0.0	0.0
% Other		0.0	0.0	0.0
Sex				
% Male		100.0	80.0	62.5
% Female		0.0	20.0	37.5
Percentage Who Are Parents		0.0	0.0	18.8
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate[a]		NA	95.6	88.9
Average Pre-Program GPA[a]		2.03	2.06	2.37
Most Recent Standardized Test Scores				
Test name or type		BSA (10)	CAT (13)	CAT (15)
Components/scores				
Math		161.7	–	–
Reading		159.0	78.4	74.6
Language		–	–	–

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a]Prior school year or prior semester.

NA = not available.

TABLE C.13

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--YORK

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		20	11	10
Date enrolled		Sept. 1992 (20)	Sept. 1993 (11)	Sept. 1994 (10)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		45.0	9.1	30.0
% 17 to 18		55.0	90.9	70.0
% 18+		0.0	0.0	0.0
(Average)		(16.7)	(16.9)	(16.8)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		100.0	100.0	100.0
% 12th		0.0	0.0	0.0
Percentage English is Primary Language		100.0	100.0	100.0
Race/Ethnicity				
% Black		0.0	9.1	0.0
% Hispanic		0.0	0.0	0.0
% White (non-Hispanic)		100.0	90.9	100.0
% Asian/Pacific Islander		0.0	0.0	0.0
% Other		0.0	0.0	0.0
Sex				
% Male		100.0	100.0	100.0
% Female		0.0	0.0	0.0
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*		95.0	93.0	91.4
Average Pre-Program GPA*		1.96	1.86	2.27
Most Recent Standardized Test Scores				
Test name or type		DAT (16)	DAT (7) CAT (1)	DAT (9) UniScore (1)
Components/scores				
Math		56.6	DAT 52.4	DAT 41.1
Reading		52.6	DAT 59.6	DAT 45.7
Language		52.2	DAT 58.3	DAT 64.2

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year.

TABLE C.14

OAKLANDWORKS

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		282	312	
Date enrolled		NA	NA	
Demographic Characteristics				
Age at Entry				
% 13 to 14		NA	NA	
% 15 to 16		NA	NA	
% 17 to 18		NA	NA	
% 18+		NA	NA	
(Average)		NA	NA	
Grade Level at Entry				
% 10th		61.0	77.6	
% 11th		39.0	22.4	
% 12th		0.0	0.0	
Percentage English is Primary Language		72.7	68.6	
Race/Ethnicity				
% Black		65.8	65.0	
% Hispanic		18.9	16.7	
% White (non-Hispanic)		1.8	1.6	
% Asian/Pacific Islander		13.2	16.7	
% Other		0.4	0.0	
Sex				
% Male		40.8	31.7	
% Female		59.2	68.3	
Percentage Who Are Parents		NA	NA	
Percentage Who Live Alone		NA	NA	
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]		88.3	82.3	
Average Pre-Program GPA[a]		2.4	2.0	
Most Recent Standardized Test Scores				
Test name or type		CTBS	CTBS	
Components/scores				
Math		NA	46.2	
Reading		NA	42.9	
Language		NA	38.9	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year.

NA = not available.

TABLE C.15

SCRIPPS RANCH HIGH SCHOOL

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled			88	2
Date enrolled			April 1994 (88)	September 1994 (2)
Demographic Characteristics				
Age at Entry				
% 13 to 14			2.3	0.0
% 15 to 16			64.4	100.0
% 17 to 18			31.0	0.0
% 18+			2.3	0.0
(Average)			(16.0)	(16.0)
Grade Level at Entry				
% 9th			22.7	0.0
% 10th			40.9	0.0
% 11th			33.0	100.0
% 12th			3.4	0.0
Percentage English is Primary Language			81.3	50.0
Race/Ethnicity				
% Black			6.8	0.0
% Hispanic			10.2	50.0
% White (non-Hispanic)			43.2	50.0
% Asian/Pacific Islander			35.2	0.0
% Other			4.6	0.0
Sex				
% Male			36.4	0.0
% Female			63.6	100.0
Percentage Who Are Parents			1.6	0.0
Percentage Who Live Alone			0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]			97.4	NA
Average Pre-Program GPA[a]			3.27	2.90
Most Recent Standardized Test Scores				
Test name or type			ASAT (70) CTBS (4)	ASAT (2)
Components/scores				
Math			ASAT 6.86	5.50
Vocabulary			ASAT 6.14	6.50
Language			ASAT 6.50	4.50

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Prior school year.

NA = not available.

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TABLE C.16

SEMINOLE COUNTY/SIEMENS

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		21	13	28
Date enrolled		Nov. 1992 (21)	Nov. 1993 (12) Dec. 1993 (1)	Oct. 1994 (28)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		33.3	0.0	0.0
% 17 to 18		66.7	83.3	96.4
% 18+		0.0	16.7	3.6
(Average)		(16.8)	(17.8)	(17.8)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		81.0	0.0	0.0
% 12th		19.0	100.0	100.0
Percentage English is Primary Language		95.2	100.0	100.0
Race/Ethnicity				
% Black		0.0	16.7	28.6
% Hispanic		9.5	0.0	7.1
% White (non-Hispanic)		90.5	75.0	60.7
% Asian/Pacific Islander		0.0	0.0	3.6
% Other		0.0	8.3	0.0
Sex				
% Male		90.5	76.9	85.7
% Female		9.5	23.1	14.3
Percentage Who Are Parents		0.0	0.0	5.6
Percentage Who Live Alone		9.1	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)[a]		96.0	96.1	98.3
Average Pre-Program GPA		3.11	2.88	2.87
Most Recent Standardized Test Scores				
Test name or type		CTB (10 SAT (2)	ACT (2) CTB (5) SAT (3)	NA
Components/scores				
Math		CTB 740.8	CTB 752.8	
Reading		CTB 765.0	CTB 780.8	
Language		CTB 732.5	CTB 748.8	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a]Prior school year.

NA = not available.

TABLE C.17

TOLEDO PRIVATE INDUSTRY COUNCIL--TOLEDO

DEMOGRAPHIC CHARACTERISTICS AND PRE-PROGRAM PERFORMANCE MEASURES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Enrolled		7	13	10
Date enrolled		Jan. 1993 (7)	Jun. 1993 (1) July 1993 (1) Aug 1993 (1) Oct. 1993 (1) Nov. 1993 (3) Jan. 1994 (3) March 1994 (2) April 1994 (1)	June 1994 (5) July 1994 (1) Aug. 1994 (1) Sept. 1994 (3)
Demographic Characteristics				
Age at Entry				
% 13 to 14		0.0	0.0	0.0
% 15 to 16		0.0	0.0	0.0
% 17 to 18		85.7	76.9	100.0
% 18+		14.3	23.1	0.0
(Average)		(17.6)	(17.9)	(17.4)
Grade Level at Entry				
% 10th		0.0	0.0	0.0
% 11th		85.7	7.7	80.0
% 12th		14.3	92.3	20.0
Percentage English is Primary Language		100.0	84.6	100.0
Race/Ethnicity				
% Black		14.3	7.7	30.0
% Hispanic		0.0	15.4	0.0
% White (non-Hispanic)		85.7	76.9	70.0
% Asian/Pacific Islander		0.0	0.0	0.0
% Other		0.0	0.0	0.0
Sex				
% Male		100.0	46.2	60.0
% Female		0.0	53.9	40.0
Percentage Who Are Parents		0.0	0.0	0.0
Percentage Who Live Alone		0.0	0.0	0.0
Pre-Program Performance Measures				
Average Attendance Rate (Percentage)*		89.2	93.5	90.2
Average Pre-Program GPA*		1.95	2.34	2.15
Most Recent Standardized Test Scores		Ohio Proficiency (7)	Ohio Proficiency (12)	Ohio Proficiency (5)
Test name or type				
Components/scores				
Math		0.71	0.83	0.80
Reading		1.0	1.0	1.0
Language		1.0	1.0	1.0

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Prior school year

TABLE C.18

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH–HEALTH CARE

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year	87	85		76
Second year	43[a]	60		–
High School Performance				
First Year				
Average attendance rate	88.8	90.9	NA	NA
Average GPA	2.4	2.4	NA	NA
Second Year				
Average attendance rate	86.3	NA	NA	NA
Average GPA	2.6	NA	NA	NA
Percent Change in Average Attendance Rate	-2.8	NA	NA	NA
Percent Change in Average GPA	8.3	NA	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience[b]	87	81		50
Characteristics of Workplace Activities				
Average number of weeks at worksite	61.7	52.2		NA
Average hours worked	18.9	16.4		NA
Average starting wage	$5.50	$5.41		$5.00
Number of students with wage increases	87	81		11
Most Frequent Job Titles				
Clerical assistant/secretary	36	17		1
Lab assistant	18	9		1
Radiology assistant	6	5		0
Unit assistant	12	6		0
Nurse's assistant	10	2		0
Assistant	11	22		9

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] One school left the program before the second year began, reducing the possible number of students continuing into the second year by 13.

[b] Excludes job shadowing or other occasional activities at worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.19

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH–FINANCIAL

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year			72	68
Second year			53	NA
High School Performance				
First Year				
Average attendance rate			NA	NA
Average GPA			NA	NA
Second Year				
Average attendance rate			NA	NA
Average GPA			NA	NA
Percent Change in Average Attendance Rate			NA	NA
Percent Change in Average GPA			NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*			67	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite			20.3	NA
Average hours worked			18.5	NA
Average starting wage			$7.01	NA
Number of students with wage increases			54	NA
Most Frequent Job Titles				
Assistant			39	NA
General clerk			14	NA
Office assistant			7	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.20

CRAFTSMANSHIP 2000 (TULSA)

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		17	11	10
Second year		16	8	NA
High School Performance				
First Year				
Average attendance rate		97.6	97.3	99.5
Average GPA		3.01	3.04	3.19
Second Year				
Average attendance rate		91.1	98.0	NA
Average GPA		2.81	3.06	NA
Percent Change in Average Attendance Rate		-6.6	0.7	NA
Percent Change in Average GPA		-6.6	0.7	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		17	8	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite		16.6	13.1	NA
Average hours worked		40.0	40.0	NA
Average starting wage		$4.32	$4.25	NA
Number of students with wage increases		10	0.0	NA
Most Frequent Job Titles				
Machinist		NA	8	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.21

GWINNETT–YOUTH APPRENTICESHIP PROGRAM

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year			52	48
Second year			2	NA
High School Performance				
First Year				
Average attendance rate			94.2	NA
Average GPA			2.99	3.15
Second Year				
Average attendance rate			NA	NA
Average GPA			NA	NA
Percent Change in Average Attendance Rate			NA	NA
Percent Change in Average GPA			NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*			39	34
Characteristics of Workplace Activities				
Average number of weeks at worksite			59.0	49.8
Average hours worked			23.0	22.9
Average starting wage			$5.74	$5.34
Number of students with wage increases			2	1
Most Frequent Job Titles				
Assistant			8	2
Sales/customer service			4	2
Teacher			3	8
Printer			2	0
Pharmacy laboratory			4	2
Technician			4	0
Management			2	14

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.22

ILLINOIS STATE BOARD OF EDUCATION--ROCKFORD

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating		15	26	34
First year		12	20	NA
Second year				
High School Performance				
First Year				
Average attendance rate		97.7	97.7	97.7
Average GPA		2.37	2.69	2.92
Second Year				
Average attendance rate		98.3	98.6	NA
Average GPA		2.85	2.69	NA
Percent Change in Average Attendance Rate		0.6	0.9	NA
Percent Change in Average GPA		20.2	0.0	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		13	18	3
Characteristics of Workplace Activities				
Average number of weeks at worksite		26.7	18.0	41.4
Average hours worked		31.5	36.5	40.0
Average starting wage		4.71	5.07	4.75
Number of students with wage increases		1	1	0
Most Frequent Job Titles		NA	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.23

ILLINOIS STATE BOARD OF EDUCATION–CHICAGO

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		26	29	33
Second year		10	11	NA
High School Performance				
First Year				
Average attendance rate		89.7	85.0	88.3
Average GPA		2.18	1.78	2.15
Second Year				
Average attendance rate		84.7	72.6	NA
Average GPA		2.33	1.42	NA
Percent Change in Average Attendance Rate		-5.6	-14.6	NA
Percent Change in Average GPA		6.9	-20.2	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		NA	4	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite		NA	11.9	NA
Average hours worked		NA	36.5	NA
Average starting wage		NA	$8.50	NA
Number of students with wage increases		NA	0.0	NA
Most Frequent Job Titles				
Deburrer		NA	4	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.24

MANUFACTURING TECHNOLOGY PARTNERSHIP (FLINT)

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating		50	54	52
First year		33	36	NA
Second year				
High School Performance				
First Year				
Average attendance rate		97.6	95.6	NA
Average GPA		2.82	3.13	3.28
Second Year				
Average attendance rate		NA	NA	NA
Average GPA		3.41	NA	NA
Percent Change in Average Attendance Rate		NA	NA	NA
Percent Change in Average GPA		15.4	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience[a]		50	42	35
Characteristics of Workplace Activities				
Average number of weeks at worksite		77.7	79.8	48.0
Average hours worked		22.7	20.0	20.0
Average starting wage		$6.25	$6.25	$6.25
Number of students with wage increases		0.0	0.0	0.0
Most Frequent Job Titles				
Trainee		50	42	35

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.25

MIDDLE GEORGIA AEROSPACE

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year			39	32
Second year			NA	NA
High School Performance				
First Year				
Average attendance rate			95.9	97.8
Average GPA			2.62	2.49
Second Year				
Average attendance rate			94.6	NA
Average GPA			2.76	NA
Percent Change in Average Attendance Rate			-1.4	NA
Percent Change in Average GPA			6.2	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*			NA	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite			NA	NA
Average hours worked			NA	NA
Average starting wage			NA	NA
Number of students with wage increases			NA	NA
Most Frequent Employers			NA	NA
Most Frequent Job Titles			NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.26

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–LYCOMING

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year	13	12	16	17
Second year	11	9	16	NA
High School Performance				
First Year				
Average attendance rate	94.8	96.7	97.2	95.8
Average GPA	3.33	3.20	3.23	NA
Second Year				
Average attendance rate	96.2	96.5	95.4	NA
Average GPA	3.14	2.90	NA	NA
Percent Change in Average Attendance Rate	1.5	-.19	-1.9	NA
Percent Change in Average GPA	-5.7	-3.4	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*	13	12	15	16
Characteristics of Workplace Activities				
Average number of weeks at worksite	78.2	80.4	78.3	32.6
Average hours worked	18.0	16.5	16.0	16.0
Average starting wage	$4.56	$4.56	$4.30	$4.25
Number of students with wage increases	1	2	2	0
Most Frequent Job Titles				
Machinist	5	4	2	6
Apprentice	4	0	0	0
Drafting	2	0	0	3
Welder	2	0	3	1
Heavy equipment	0	3	0	0
Maintenance	0	0	2	0
Quality	0	0	1	0
Diesel mechanic/body repair	0	0	0	3

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.27

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--MONTGOMERY

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		14	14	27
Second year		14	8	NA
High School Performance				
First Year				
Average attendance rate		95.5	92.9	NA
Average GPA		2.76	2.61	NA
Second Year				
Average attendance rate		92.3	NA	NA
Average GPA		3.27	NA	NA
Percent Change in Average Attendance Rate		-3.4	NA	NA
Percent Change in Average GPA		18.5	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience[a]		14	13	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite		78.2	60.1	NA
Average hours worked		18.7	18.0	NA
Average starting wage		$5.53	$5.36	NA
Number of students with wage increases		12	8	NA
Most Frequent Job Titles				
Machinist		8	6	NA
Tool maker		2	3	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C 28

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--PHILADELPHIA

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		10	5	12
Second year		4	2	NA
High School Performance				
First Year				
Average attendance rate		91.4	92.2	89.3
Average GPA		2.57	2.41	2.01
Second Year				
Average attendance rate		94.4	87.7	NA
Average GPA		2.36	2.62	NA
Percent Change in Average Attendance Rate		3.3	-4.9	NA
Percent Change in Average GPA		-8.2	8.7	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		10	5	12
Characteristics of Workplace Activities				
Average number of weeks at worksite		61.6	29.7	15.5
Average hours worked		21.6	19.8	18.8
Average starting wage		$6.07	$5.58	$5.60
Number of students with wage increases		3	1	0.0
Most Frequent Job Titles				
Apprentice		9	5	12

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.29

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–PITTSBURGH

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		11	15	16
Second year		3	11	NA
High School Performance				
First Year				
Average attendance rate		90.0	97.3	NA
Average GPA		1.94	2.40	NA
Second Year				
Average attendance rate		94.0	NA	NA
Average GPA		2.39	NA	NA
Percent Change in Average Attendance Rate		4.4	NA	NA
Percent Change in Average GPA		23.2	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		9	12	4
Characteristics of Workplace Activities				
Average number of weeks at worksite		38.1	56.3	24.2
Average hours worked		17.4	16.4	16.0
Average starting wage		$5.00	$4.58	$4.50
Number of students with wage increases		0.0	0.0	0.0
Job Titles				
Student apprentice		9	12	4

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.30

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–YORK

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		20	11	10
Second year		16	7	NA
High School Performance				
First Year				
Average attendance rate		94.9	93.6	94.4
Average GPA		2.34	1.93	2.02
Second Year				
Average attendance rate		92.8	95.2	NA
Average GPA		2.16	2.04	NA
Percent Change in Average Attendance Rate		-2.2	1.7	NA
Percent Change in Average GPA		-7.7	5.7	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		18	10	10
Characteristics of Workplace Activities				
Average number of weeks at worksite		67.3	45.3	22.9
Average hours worked		18.3	16.0	16.0
Average starting wage		$4.81	$5.00	$5.00
Number of students with wage increases		10	0.0	0.0
Job Titles				
Machinist student learner		18	10	10

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.31

OAKLANDWORKS

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		282	312	
Second year		266	220	
High School Performance				
First Year				
Average attendance rate		83.6	79.6	
Average GPA		2.3	2.2	
Second Year				
Average attendance rate		79.1	80.1	
Average GPA		2.1	1.2	
Percent Change in Average Attendance Rate		-5.4	0.1	
Percent Change in Average GPA		-8.7	-45.5	
Workplace Experiences				
Number Participated in Any Workplace Experience[a]		NA	NA	
Characteristics of Workplace Activities				
Average number of weeks at worksite		NA	NA	
Average hours worked		NA	NA	
Average starting wage		NA	NA	
Number of students with wage increases		NA	NA	
Most Frequent Job Titles				
Machinist		NA	NA	
Tool maker		NA	NA	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.32

SCRIPPS RANCH HIGH SCHOOL

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year			88	2
Second year			68	NA
High School Performance				
First Year				
Average attendance rate			96.9	89.2
Average GPA			3.33	2.92
Second Year				
Average attendance rate			97.7	NA
Average GPA			3.47	NA
Percent Change in Average Attendance Rate			NA	NA
Percent Change in Average GPA			NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience[a]			8	NA
Characteristics of Workplace Activities				
Average number of weeks at worksite			20.3	NA
Average hours worked			17.73	NA
Average starting wage			$5.76	NA
Number of students with wage increases			1	NA
Most Frequent Job Titles				
Clerical/receptionist			7	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a]Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.33

SEMINOLE COUNTY/SIEMENS

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		21	13	28
Second year		14	6	NA
High School Performance				
First Year				
Average attendance rate		95.1	95.0	NA
Average GPA		NA	NA	NA
Second Year				
Average attendance rate		94.6	99.4	NA
Average GPA		NA	NA	NA
Percent Change in Average Attendance Rate		-0.5	4.6	NA
Percent Change in Average GPA		NA	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		21	12	28
Characteristics of Workplace Activities				
Average number of weeks at worksite		78.7	43.3	22.2
Average hours worked		6.0	6.0	6.0
Average starting wage		4.25	4.25	4.25
Number of students with wage increases		0.0	0.0	0.0
Most Frequent Job Titles				
Apprentice		21	12	28

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.34

TOLEDO PRIVATE INDUSTRY COUNCIL–TOLEDO

SECONDARY SCHOOL PERFORMANCE AND CHARACTERISTICS OF WORKPLACE EXPERIENCES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Number Participating				
First year		7	13	10
Second year		2	1	NA
High School Performance				
First Year				
Average attendance rate		91.9	87.8	NA
Average GPA		1.94	2.51	2.17
Second Year				
Average attendance rate		86.3	NA	NA
Average GPA		2.38	NA	NA
Percent Change in Average Attendance Rate		-6.1	NA	NA
Percent Change in Average GPA		22.7	NA	NA
Workplace Experiences				
Number Participated in Any Workplace Experience*		7	13	10
Characteristics of Workplace Activities				
Average number of weeks at worksite		21.5	28.4	17.6
Average hours worked		12.8	14.1	29.6
Average starting wage		$4.66	$4.70	$4.88
Number of students with wage increases		0.0	1	0.0
Most Frequent Job Titles				
Apprentice		1	1	0
Machinist		2	0	0
Drafting/carpentry		0	3	1
Medical assistant		0	4	0
Dental assistant		0	2	1

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*Excludes job shadowing or other occasional activities at a worksite, but may include short-term (e.g., one week) internships.

NA = not available.

TABLE C.35

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH-HEALTHCARE

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders	2	0		0
11th graders	81[a]	85		73
12th graders	4	0		1
Status of Students in Spring 1995				
Percentage continuing in program	44.6	61.2		86.8
Percentage completed program[b]	NA	NA		NA
Percentage exited early	55.4	38.8		13.2
Average Number of Months in Program for all Enrollees[c]	24.6	21.6		6.7
Average Number of Months in Program for Early Exits	9.8	7.6		4.5
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program	14.6	11.8		10.0
To pursue full-time employment	0.0	0.0		0.0
To pursue full-time education/training or enter military	0.0	0.0		0.0
Work/class scheduling conflict	2.4	0.0		0.0
Poor attendance or poor performance	48.8	38.2		0.0
Moved away	0.0	8.8		0.0
Program conflicts with extracurricular activities	0.0	0.0		0.0
Family/personal/health problems	14.6	17.7		0.0
Dropped out of school	7.3	5.9		0.0
Other reason	0.0	14.7		0.0
Unknown	12.2	2.9		90.0
Outcomes for Students Who Competed Senior Year in the Program[d]				
Number of Senior Completers	38	NA		NA
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation	97.4	NA		NA
Employed after high school	97.4	NA		NA
Continuing in program work-based placement	92.1	NA		NA
Other employer	5.3	NA		NA
Outcomes unknown	0.0	NA		NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] One school left the program after the first year, reducing the cohort by 13 students. These students are excluded from the calculation of outcomes.

[b] Data provided did not allow us to determine program completion. The program features a 2+2 design; only the first cohort of students could conceivably have completed the full four years.

[c] A stop date of March 31, 1995, was used for students continuing in the program after the evaluation data collection was terminated.

[d] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school, by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.36

(BOSTON PRIVATE INDUSTRY COUNCIL) PROTECH-FINANCIAL

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders			0	0
11th graders			72	68
12th graders			0	0
Status of Students in Spring 1995				
Percentage continuing in program			73.6	94.1
Percentage completed program[a]			NA	NA
Percentage exited early			26.4	5.9
Average Number of Months in Program for All Enrollees[b]			15.8	6.7
Average Number of Months in Program for Early Exits			8.3	1.8
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program			0.0	75.0
To pursue full-time employment			0.0	0.0
To pursue full-time education/training or enter military			0.0	0.0
Work/class scheduling conflict			5.3	0.0
Poor attendance or poor performance			57.9	0.0
Moved away			0.0	0.0
Program conflicts with extracurricular activities			0.0	0.0
Family/personal/health problems			31.6	25.0
Dropped out of school			0.0	0.0
Other reason			5.3	0.0
Unknown			0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program[c]				
Number of Senior Completers			NA	NA
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation			NA	NA
Employed after high school			NA	NA
Continuing in program work-based placement			NA	NA
Other employer			NA	NA
Outcomes unknown			NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] Data provided did not allow us to determine program completion. The program features a 2+2 design; only the first cohort of students could conceivably have completed the full four years.

[b] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[c] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.37

CRAFTSMANSHIP 2000- (TULSA)

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		14	11	10
12th graders		3	0	0
Status of Students in Spring 1995				
Percentage continuing in program		52.9	63.6	100.0
Percentage completed program		0.0	0.0	0.0
Percentage exited early		47.1	36.4	0.0
Average Number of Months in Program for All Enrollees[a]		24.3	16.1	7.5
Average Number of Months in Program for Early Exits		17.3	9.8	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		12.5	75.0	NA
To pursue full-time employment		12.5	0.0	NA
To pursue full-time education/training or enter military		12.5	25.0	NA
Work/class scheduling conflict		0.0	25.0	NA
Poor attendance or poor performance		50.0	0.0	NA
Moved away		0.0	0.0	NA
Program conflicts with extracurricular activities		0.0	50.0	NA
Family/personal/health problems		25.0	0.0	NA
Dropped out of school		0.0	0.0	NA
Other reason		0.0	0.0	NA
Unknown		0.0	0.0	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		14	0	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		71.4	NA	NA
Employed after high school		78.6	NA	NA
Continuing in program work-based placement		78.6	NA	NA
Other employer		0.0	NA	NA
Outcomes unknown		21.4	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.38

GWINNETT YOUTH APPRENTICESHIP PROGRAM

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders			0	0
11th graders			4	4
12th graders			48	44
Status of Students in Spring 1995				
Percentage continuing in program			2.0	85.4
Percentage completed program			80.0	4.2
Percentage exited early			18.0	10.4
Average Number of Months in Program for All Enrollees[a]			5.0	5.8
Average Number of Months in Program for Early Exits			1.3	4.0
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program			0.0	50.0
To pursue full-time employment			22.2	0.0
To pursue full-time education/training or enter military			0.0	50.0
Work/class scheduling conflict			55.6	0.0
Poor attendance or poor performance			0.0	0.0
Moved away			0.0	0.0
Program conflicts with extracurricular activities			0.0	50.0
Family/personal/health problems			11.1	0.0
Dropped out of school			11.1	50.0
Other reason			22.2	0.0
Unknown			0.0	60.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Seniors Completers			38	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation			65.8	NA
Employed after high school			23.7	NA
Continuing in program work-based placement			0.0	NA
Other employer			23.7	NA
Outcomes Unknown			18.4	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for students who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.39

ILLINOIS STATE BOARD OF EDUCATION--ROCKFORD

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		15	25	31
12th graders		0	1	3
Status of Students in Spring 1995				
Percentage continuing in program		40.0	73.1	100.0
Percentage completed program		0.0	0.0	0.0
Percentage exited early		60.0	26.9	0.0
Average Number of Months in Program for All Enrollees[a]		22.4	17.0	7.5
Average Number of Months in Program for Early Exits		16.4	10.6	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		22.2	14.3	NA
To pursue full-time employment		33.0	0.0	NA
To pursue full-time education/training or enter military		44.4	71.4	NA
Work/class scheduling conflict		33.3	57.1	NA
Poor attendance or poor performance		33.3	28.6	NA
Moved away		0.0	0.0	NA
Program conflicts with extracurricular activities		11.1	42.8	NA
Family/personal/health problems		0.0	0.0	NA
Dropped out of school		0.0	0.0	NA
Other reason		0.0	0.0	NA
Unknown		0.0	0.0	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		10	1	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		80.0	100.0	NA
Employed after high school		40.0	100.0	NA
Continuing in program work-based placement		40.0	100.0	NA
Other employer		0.0	0.0	
Outcomes Unknown		10.0	0.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for students who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available

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TABLE C.40

ILLINOIS STATE BOARD OF EDUCATION–CHICAGO

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders	1	0	0	
11th graders	12	17	33	
12th graders	13	12	0	
Status of Students in Spring 1995				
Percentage continuing in program	0.0	31.0	93.9	
Percentage completed program	76.9	34.5	0.0	
Percentage exited early	23.1	34.5	6.1	
Average Number of Months in Program[a]	12.9	13.1	6.4	
Average Number of Months in Program for Early Exits	8.3	11.3	1.8	
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program	66.7	70.0	50.0	
To pursue full-time employment	0.0	10.0	0.0	
To pursue full-time education/training or enter military	0.0	0.0	0.0	
Work/class scheduling conflict	0.0	0.0	0.0	
Poor attendance or poor performance	50.0	20.0	0.0	
Moved away	0.0	20.0	50.0	
Program conflicts with extracurricular activities	0.0	0.0	0.0	
Family/personal/health problems	16.7	10.0	50.0	
Dropped out of school	16.7	0.0	0.0	
Other reason	0.0	0.0	0.0	
Unknown	0.0	0.0	0.0	
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers	20	10	0	
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation	55.0	90.0	NA	
Employed after high school	80.0	100.0	NA	
Continuing in program work-based placement	5.0	0.0	NA	
Other employer	75.0	100.0	NA	
Outcomes Unknown	5.0	0.0	NA	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.41

MANUFACTURING TECHNOLOGY PARTNERSHIP (FLINT)

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		25	54	52
12th graders		24	0	0
Status of Students in Spring 1995				
Percentage continuing in program		57.1	64.8	82.7
Percentage completed program		0.0	0.0	0.0
Percentage exited early		42.9	35.2	17.3
Average Number of Months in Program for All Enrollees[a]		23.2	14.3	6.1
Average Number of Months in Program for Early Exits		11.9	5.3	1.6
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		4.8	47.4	77.8
To pursue full-time employment		0.0	0.0	0.0
To pursue full-time education/training or enter military		33.3	0.0	0.0
Work/class scheduling conflict		0.0	15.8	0.0
Poor attendance or poor performance		52.4	10.5	0.0
Moved away		0.0	5.30	11.1
Program conflicts with extracurricular activities		0.0	5.3	0.0
Family personal/health problems		0.0	5.3	0.0
Dropped out of school		0.0	5.3	0.0
Other reason		9.5	5.3	11.1
Unknown		0.0	0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		40	0	0
Outcomes (Percentage of Senior Completers)				
Entered planned to enter college/training in fall after high school graduation		85.3	NA	NA
Employed after high school		92.7	NA	NA
Continuing in program work-based placement		92.7	NA	NA
Other employer		0.0	NA	NA
Outcomes Unknown		4.9	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.42

MIDDLE GEORGIA AEROSPACE

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders			0.0	0.0
11th graders			3.9	3.3
12th graders			0.0	.8
Status of Students in Spring 1995				
Percentage continuing in program			69.2	95.1
Percentage completed program			0.0	0.0
Percentage exited early			30.8	4.9
Average Number of Months in Program for Enrollees[a]			17.8	6.1
Average Number of Months in Program for Early Exits			10.2	6.7
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program			20.0	0.0
To pursue full-time employment			0.0	0.0
To pursue full-time education/training or enter military			20.0	0.0
Work/class scheduling conflict			0.0	0.0
Poor attendance or poor performance			20.0	50.0
Moved away			20.0	0.0
Program conflicts with extracurricular activities			0.0	0.0
Family/personal/health problems			0.0	0.0
Dropped out of school			0.0	50.0
Other reason			20.0	0.0
Unknown			0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers			0	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation			NA	NA
Employed after high school			NA	NA
Continuing in program work-based placement			NA	NA
Other employer			NA	NA
Outcomes Unknown			NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.43

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--LYCOMING

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders	0	0	2	0
11th graders	13	10	10	15
12th graders	0	2	4	2
Status of Students in Spring 1995				
Percentage continuing in program	0.0	75.0	81.3	100.0
Percentage completed program	69.2	16.7	18.8	0.0
Percentage exited early	30.8	8.3	0.0	0.0
Average Number of Months in Program for All Enrollees[a]	18.3	26.7	17.6	7.3
Average Number of Months in Program for Early Exits	11.7	12.9	NA	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program	50.0	0.0	NA	NA
To pursue full-time employment	0.0	0.0	NA	NA
To pursue full-time education/training or enter military	0.0	0.0	NA	NA
Work/class scheduling conflict	0.0	0.0	NA	NA
Poor attendance or poor performance	25.0	0.0	NA	NA
Moved away	0.0	0.0	NA	NA
Program conflicts with extracurricular activities	0.0	0.0	NA	NA
Family/personal/health problems	0.0	0.0	NA	NA
Dropped out of school	25.0	0.0	NA	NA
Other reason	0.0	100.0	NA	NA
Unknown	0.0	0.0	NA	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers	9	11	14	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation	66.7	90.9	66.7	NA
Employed after high school	44.4	9.1	66.7	NA
Continuing in program work-based placement	11.1	9.1	33.3	NA
Other employer	33.3	0.0	33.3	NA
Outcomes Unknown	22.2	9.1	0.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE A.44

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--MONTGOMERY

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		1	0	0
11th graders		12	14	27
12th graders		1	0	2
Status of Students in Spring 1995				
Percentage continuing in program		0.0	57.1	88.9
Percentage completed program		100.0	0.0	0.0
Percentage exited early		0.0	42.9	11.1
Average Number of Months in Program for All Enrollees*		21.4	13.8	6.5
Average Number of Months in Program for Early Exits		NA	7.7	4.7
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		NA	83.3	33.3
To pursue full-time employment		NA	0.0	0.0
To pursue full-time education/training or enter military		NA	0.0	0.0
Work/class scheduling conflict		NA	0.0	0.0
Poor attendance or poor performance		NA	0.0	0.0
Moved away		NA	16.7	33.3
Program conflicts with extracurricular activities		NA	0.0	0.0
Family/personal/health problems		NA	0.0	0.0
Dropped out of school		NA	0.0	0.0
Other reason		NA	0.0	33.3
Unknown		NA	0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program†				
Number of Senior Completers		14	0	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		100.0	NA	NA
Employed after high school		85.7	NA	NA
Continuing in program work-based placement		64.3	NA	NA
Other employer		21.4	NA	NA
Outcomes unknown		0	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

*A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

†Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.45

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–PHILADELPHIA

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		4	3	5
12th graders		6	2	7
Status of Students in Spring 1995				
Percentage continuing in program		0.0	40.0	83.3
Percentage completed program		80.0	40.0	0.0
Percentage exited early		20.0	20.0	16.7
Average Number of Months in Program[a]		13.5	6.9	4.2
Average Number of Months in Program for Early Exits		11.3	5.2	1.0
Reasons for Early Exits (Percentage of Early Exits)		100.0	100.0	50.0
Dissatisfied with program		0.0	0.0	0.0
To pursue full-time employment		50.0	0.0	0.0
To pursue full-time education/training or enter military		0.0	0.0	0.0
Work/class scheduling conflict		0.0	0.0	0.0
Poor attendance or poor performance		0.0	0.0	0.0
Moved away		0.0	0.0	0.0
Program conflicts with extracurricular activities		0.0	0.0	0.0
Family/personal/health problems		0.0	0.0	50.0
Dropped out of school		0.0	0.0	0.0
Other reason		0.0	0.0	0.0
Unknown		0.0	0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		8	2	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		62.5	0.0	NA
Employed after high school		75.0	100.0	NA
Continuing in program work-based placement		75.0	100.0	NA
Other employer		0.0	0.0	NA
Outcomes Unknown		12.5	0.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.46

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM–PITTSBURGH

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		11	15	16
12th graders		0	0	0
Status of Students in Spring 1995				
Percentage continuing in program		0.0	73.3	100.0
Percentage completed program		18.2	0.0	0.0
Percentage exited early		81.8	26.7	0.0
Average Number of Months in Program for All Enrollees[a]		10.8	15.7	6.8
Average Number of Months in Program for Early Exits		8.9	6.8	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		33.3	50.0	NA
To pursue full-time employment		0.0	0.0	NA
To pursue full-time education/training or enter military		22.2	0.0	NA
Work/class scheduling conflict		0.0	0.0	NA
Poor attendance or poor performance		77.8	50.0	NA
Moved away		0.0	0.0	NA
Program conflicts with extracurricular activities		0.0	0.0	NA
Family/personal/health problems		0.0	0.0	NA
Dropped out of school		0.0	0.0	NA
Other reason		0.0	0.0	NA
Unknown		0.0	0.0	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		2	0	0
Outcomes (Percentage of Senior Completers)				
Entered planned to enter college/training in fall after high school graduation		50.0	NA	NA
Employed after high school		100.0	NA	NA
Continuing in program work-based placement		100.0	NA	NA
Other employer		0.0	NA	NA
Outcomes Unknown		0.0	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.47

PENNSYLVANIA YOUTH APPRENTICESHIP PROGRAM--YORK

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		20	11	10
12th graders		0	0	0
Status of Students in Spring 1995				
Percentage continuing in program		0.0	63.6	100.0
Percentage completed program		75.0	0.0	0.0
Percentage exited early		25.0	36.4	0.0
Average Number of Months in Program for All Enrollees[a]		18.7	15.7	7.0
Average Number of Months in Program for Early Exits		9.8	9.7	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		40.0	75.0	NA
To pursue full-time employment		0.0	0.0	NA
To pursue full-time education/training or enter military		20.0	0.0	NA
Work/class scheduling conflict		0.0	0.0	NA
Poor attendance or poor performance		60.0	50.0	NA
Moved away		60.0	0.0	NA
Program conflicts with extracurricular activities		0.0	0.0	NA
Family/personal/health problems		0.0	0.0	NA
Dropped out of school		0.0	0.0	NA
Other reason		0.0	50.0	NA
Unknown		0.0	0.0	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		15	0	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		33.3	NA	NA
Employed after high school		66.7	NA	NA
Continuing in program work-based placement		40.0	NA	NA
Other employer		26.7	NA	NA
Outcomes Unknown		13.3	NA	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.48

OAKLANDWORKS

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		172	242	
11th graders		110	70	
12th graders		0	0	
Status of Students in Spring 1995				
Percentage continuing in program		NA	NA	
Percentage Completed Program		NA	NA	
Percentage exited early		NA	NA	
Average Number of Months in Program for All Enrollees[a]		NA	NA	
Average Number of Months in Program for Early Exits		NA	NA	
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		NA	NA	
To pursue full-time employment		NA	NA	
To pursue full-time education/training or enter military		NA	NA	
Work/class scheduling conflict		NA	NA	
Poor attendance or poor performance		NA	NA	
Moved away		NA	NA	
Program conflicts with extracurricular activities		NA	NA	
Family/personal/health problems		NA	NA	
Dropped out of school		NA	NA	
Other reason		NA	NA	
Unknown		NA	NA	
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		NA	NA	
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		NA	NA	
Employed After high school		NA	NA	
Continuing in program work-based placement		NA	NA	
Other employer		NA	NA	
Outcomes Unknown		NA	NA	

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE C.49

SCRIPPS RANCH HIGH SCHOOL

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
9th graders			20	0
10th graders			36	0
11th graders			29	2
12th graders			3	0
Status of Students in Spring 1995				
Percentage continuing in program			71.6	100.0
Percentage completed program			2.3	0.0
Percentage exited early			26.1	0.0
Average Number of Months in Program for All Enrollees[a]			10.1	6.8
Average Number of Months in Program for Early Exits			5.6	NA
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program			40.9	NA
To pursue full-time employment			0.0	NA
To pursue full-time education/training or enter military			0.0	NA
Work/class scheduling conflict			9.1	NA
Poor attendance or poor performance			4.6	NA
Moved away			45.5	NA
Program conflicts with extracurricular activities			0.0	NA
Family/personal/health problems			0.0	NA
Dropped out of school			0.0	NA
Other reason			0.0	NA
Unknown			4.4	NA
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers			2	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation			NA	NA
Employed after high school			NA	NA
Continuing in program work-based placement			NA	NA
Other employer			NA	NA
Outcomes Unknown			100.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for students who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

TABLE A.50

SEMINOLE COUNTY/SIEMENS

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0.0	0.0	0.0
11th graders		17	0.0	0.0
12th graders		4	12	28
Status of Students in Spring 1995				
Percentage continuing in program		28.6	33.3	89.3
Percentage completed program		0.0	0.0	0.0
Percentage exited early		71.4	66.7	10.7
Average Number of Months in Program for All Enrollees[a]		18.3	10.6	5.2
Average Number of Months in Program for Early Exits		13.9	6.8	2.5
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		0.0	100.0	0.0
To pursue full-time employment		0.0	0.0	0.0
To pursue full-time education/training or enter military		0.0	0.0	0.0
Work/class scheduling conflict		0.0	0.0	0.0
Poor attendance or poor performance		0.0	0.0	0.0
Moved away		0.0	0.0	0.0
Program conflicts with extracurricular activities		0.0	0.0	0.0
Family/personal/health problems		0.0	0.0	0.0
Dropped out of school		0.0	0.0	0.0
Other reason		0.0	0.0	0.0
Unknown		100.0	87.5	100.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		11	9	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		45.5	77.8	NA
Employed after high school		90.9	100.0	NA
Continuing in program work-based placement		36.4	55.6	NA
Other employer		54.5	44.4	NA
Outcomes Unknown		9.1	0.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

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TABLE C.51

TOLEDO PRIVATE INDUSTRY COUNCIL–TOLEDO

PROGRAM STATUS AND OUTCOMES, BY COHORT DATE OF ENTRY

	Fall 1991	Fall 1992	Fall 1993	Fall 1994
Status of Enrollees				
Number of Students Enrolled				
10th graders		0	0	0
11th graders		6	1	8
12th graders		1	12	2
Status of Students in Spring 1995				
Percentage continuing in program		0.0	7.7	30.0
Percentage completed program		14.3	84.6	0.0
Percentage exited early		85.7	7.7	70.0
Average Number of Months in Program for All Enrollees[a]		9.4	6.9	4.2
Average Number of Months in Program for Early Exits		8.1	3.7	3.2
Reasons for Early Exits (Percentage of Early Exits)				
Dissatisfied with program		0.0	100.0	14.3
To pursue full-time employment		0.0	0.0	0.0
To pursue full-time education/training or enter military		0.0	0.0	0.0
Work/class scheduling conflict		0.0	0.0	14.3
Poor attendance or poor performance		66.7	100.0	57.1
Moved away		0.0	0.0	0.0
Program conflicts with extracurricular activities		0.0	0.0	28.6
Family/personal/health problems		0.0	0.0	14.3
Dropped out of school		16.7	0.0	0.0
Other reason		0.0	0.0	14.3
Unknown		0.0	0.0	0.0
Outcomes for Students Who Competed Senior Year in the Program[b]				
Number of Senior Completers		1	11	0
Outcomes (Percentage of Senior Completers)				
Entered/planned to enter college/training in fall after high school graduation		100.0	72.9	NA
Employed after high school		100.0	90.9	NA
Continuing in program work-based placement		100.0	72.7	NA
Other employer		0.0	18.2	NA
Outcomes Unknown		0.0	0.0	NA

SOURCE: School-to-Work Transition Demonstration Database maintained by Mathematica Policy Research, Inc.

[a] A stop date of March 31, 1995 was used for students continuing in the program after the evaluation data collection was terminated.

[b] Program staff did not generally collect or document data on outcomes for participants who exited before the end of their senior year. Outcome information was available only for senior year completers, all of whom graduated from high school by definition. The high rate of high school graduation for these students does not necessarily represent that of all participants, however.

NA = not available.

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